UNIVERSITY OF MADRAS

THE CALENDAR

1959-60

VOLUME II

Statutes, Ordinances, Regulations, Syllabuses and Text-books for the Examination in the Faculties of Arts, Science, Oriental Learning, Fine Arts and Commerce.

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VOLUME II

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Note:—The Regulations for M.Litt., M.Sc. (by examination) will be found in Volume II, University Calendar 1953-54. Examinations will be conducted under these Regulations for a transitory period. The other Old Regulations may also be found in Volume II, University Calendar, 1953-54.

*CHAPTER XXXIII

Register of Matriculates

Ordinances under Sections 19 (*p*) *and* 31 (*a*) *of the Act.*

Maintenance of Register of Matriculates—Enrolment.

1. The Syndicate shall maintain a Register of Matriculates in which the names of the following classes of persons shall be registered:—

(*a*) Candidates who pass the Matriculation Examination of the University.

(*b*) Holders of completed Secondary School-Leaving or Anglo-Indian School-Leaving Certificates declared eligible, and holders of other Certificates accepted by the Syndicate as qualifying for admission to this University and candidates who have passed an examination accepted by the Syndicate as equivalent to the Matriculation Examination of this University, when admitted to a University Course of Study.

(*c*) Holders of any degree, title, diploma or certificate, other than those specified in (*a*) or (*b*), on first admission to a University Course of study.

(*d*) Persons, other than those specified in (*a*), (*b*) or (*c*), who with or without exemption from attendance certificates are permitted to appear for the first time for any examination of this University other than the Matriculation Examination.

(*e*) Persons other than those specified in (*a*), (*b*), (*c*) or (*d*), who are candidates for admission to a Research Degree of this University.

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* For Chapters I to XXXII *vide* Volume I, University Calendar.

2. The Register of Matriculates maintained under the preceding Ordinance shall set forth, in respect of each Matriculate, the name in full, the name of father or guardian, age, religion, language, school where educated, number and date of School-Leaving Certificate or Anglo-Indian School-Leaving Certificate, Government issuing certificate, accepted examination, date of passing and number of certificate, authority issuing certificate, institution entered, date of admission, and University examination for which he has been permitted to appear, or Research Degree for which he is a candidate.

CHAPTER XXXIV.

Admission of Holders of S.S.L.C., A.I.S.L.C. and O.H.S.L.C. to University Courses of Study

Ordinances framed under Section 19 (p) of the Act.

Secondary School-Leaving Certificates

1. (*a*) Holders of completed Secondary School-Leaving Certificates may be admitted to University Courses of Study if they (*a*) shall have completed the age of fourteen years and six months on the fifteenth day of July of the year in which they seek admission to Courses of study, and (*b*) shall have secured at the Public Examination the marks prescribed below, and been declared eligible for admission to University Courses of Study by the Syndicate.

I. For candidates who have selected the Academic Course.

Not less than 80 marks out of a total of 200 marks in the Language or Languages chosen under Parts I and II together, 40 marks in English and 100 marks in the following three subjects taken together, (i) Mathematics, (ii) Social Studies and (iii) General Science, provided the candidate secures not less than 35 per cent in two of the subjects and not less than 25 per cent in the third subject; provided further that a certificate-holder who secures in the aggregate not less than 225 marks in the five subjects, but fails in not more than two subjects by a deficiency of not more than one mark in each subject, shall be declared eligible for admission to University Courses of Study.

Candidates who have been declared eligible under the above rules may be admitted to any University Course of Study at the Pre-University stage.

II. For candidates who have selected teaching practice under the Diversified Course.

Not less than 40 marks in the Regional Language, 40 marks in English and 130 marks in the following subjects taken together: (1) Mathematics, (2) Social Studies, (3) General Science and (4) Teaching Practice; the marks being not less than 35 per cent in each of any two of these four subjects and not less than 25 per cent in (each of) the other two; provided that a Certificate-holder who secures in the aggregate not less than 215 marks in the six subjects but fails in not more than two subjects by a deficiency of not more than one mark in each subject, shall be declared eligible for admission to University Courses of Study.

Such candidates as have been declared eligible under the above may be admitted to any Course of study at the Pre-University stage.

III. For candidates who have selected the Secretarial Course.

Not less than 40 marks in the Regional Language, 40 marks in English, and 130 marks in the following subjects taken together: (i) Social Studies, (ii) Commercial Arithmetic, (iii) Drafting and Precis-writing and Typewriting and (iv) two subjects chosen from among Book-keeping, Commercial Practice and Shorthand; the marks being not less than 35 per cent in each of any two of these four subjects and not less than 25 per cent in each of the other two; provided that a Certificate-holder who secures in the aggregate not less than 215 marks in the six subjects but fails in not more than two subjects by a deficiency of not more than one mark in each subject, shall be declared eligible for admission to University Courses of Study.

Such candidates shall be eligible for all Courses of study at the Pre-University stage.

IV. For candidates who have selected the Pre-Technological Course.

Not less than 40 marks in the Regional Language, 40 marks in English and 130 marks in the following subjects taken together: (i) Mathematics, (ii) Social Studies and for Engineering Course, (iii) General Science and Drawing and (iv) Applied Science and Practical Examination or, for Agriculture Course, (iii) and (iv) Agriculture, including Elementary Science being grouped under two subject headings; or, for Textile Technology Course, (iii) Handloom Weaving, Theory and Practical and (iv) Dyeing and Printing—theory and practical; the marks being not less than 35 per cent in each of any two of the subjects, and not less than 25 per cent in each of the other two subjects; provided that a Certificate-holder who secures in the aggregate not less than 215 marks in the six subjects, but fails in not more than two subjects by a deficiency of not more than one mark in each subject shall be declared eligible for admission to University Courses of Study.

Such candidates as have been declared eligible under the above rules may be admitted to any University Course of study at the Pre-University stage.

V. For candidates who have selected the Aesthetic and Domestic Course.

Not less than 40 marks in the Regional Language under Part I, 40 marks in English under Part II and 130 marks in the other two subjects under Part II and the two sub-divisions of the subject under Part III taken together; the marks being not less than 35 per cent in each of any two of these and not less than 25 per cent in each of the other two; provided that a Certificate-holder who secures in the aggregate not less than 215 marks in the six minima, but fails in not more than two subjects by a deficiency of not more than one mark in each subject, shall be

declared eligible for admission to University Courses of Study.

There shall be a Moderation Board appointed by the Syndicate to consider hard cases.

(*b*) A candidate for admission to University Courses of Study who in any year fails to qualify by reason of deficiency in any subject or subjects in which he has undergone examination shall be required to appear again at the Public Examination in all the six (or five) subjects, and his eligibility shall be determined by the marks obtained by him at his last appearance.

(*c*) No holder of a Certificate declared ineligible on a scrutiny shall be declared eligible on a re-scrutiny according to Ordinances prescribed after the first scrutiny provided, however, it shall be competent for the Syndicate to re-scrutinize the Certificates of candidates who appeared for the S.S.L.C. Examination of 1925 or earlier, in accordance with the Rules in force at the time (1926), and the Certificates of candidates who would have been eligible had the subjects of Shorthand and Typewriting been included in the list of subjects in the year in which they appeared for the examination under the S.S.L.C. Scheme of 1929 (*i.e.* from the S.S.L.C. Examination of 1932), on payment of the prescribed fee.

(*d*) A complete list of Certificate-holders declared eligible for admission to University Courses of Study shall be published in the *Fort St. George Gazette*, and a copy of the list shall be furnished to each Principal of a Constituent or an Affiliated College.

Anglo-Indian School-Leaving Certificates

2. (*a*) Candidates who have appeared for the Madras Anglo-Indian High School Examination shall be declared eligible for admission to University Courses of Study if they have secured a " pass " at the Anglo-Indian High School Examination, Madras.

Such persons shall have completed the age of fourteen years and six months on the fifteenth day of July of the year in which they seek admission to University Courses of Study.

(*b*) A candidate for admission to University Courses of Study, who in any year fails to qualify for admission by reason of deficiency in any subject or subjects in which he has undergone examination, shall be required to appear again at the Public Examination in all subjects and secure a pass.

(*c*) A complete list of Certificate-holders declared eligible for admission to University Courses of Study shall be published in the *Fort St. George Gazette* and a copy of the list shall be furnished to each Principal of a Constituent or an Affiliated College.

Oriental High School-Leaving Certificates

3. A candidate for the purpose of eligibility for admission to the Pre-University course of study should have completed the Oriental High School Examination securing the following percentage of marks in the subjects comprising the course :

(*a*) Classical Language or Non-Classical Language: Not less than 40 per cent.

(*b*) English : Not less than 40 per cent.

(*c*) Social Studies and Regional Language or Social Studies and Modern Knowledge : 70 marks in the aggregate securing not less than 30 per cent in each.

CHAPTER XXXV.

Admission to Courses of Study

Ordinances under Sections 19 (p) and 31 (a) of the Act.

Registration as Matriculates.

1. No person shall be permitted to enter upon a University Course of Study for the first time unless he gets his name registered in the Register of Matriculates maintained by the Syndicate. Every applicant for registration shall pay to the University such registration fee as may be prescribed.

Such persons shall have completed the age of fourteen years and six months on the fifteenth day of July of the year in which they seek admission to University Courses of Study:

* Provided that it shall be competent for the Syndicate to waive a strict compliance with the above age limit in the case of a student who has been declared eligible in a year prior to the date of admission.

Conditions of admission to the Pre-University Course.

2. Admission to the Course of Study for the Pre-University Examination shall be granted only to the following classes of students:—

(i) Persons who have passed the Matriculation Examination of this University.

(ii) Holders of completed Secondary School-Leaving Certificates and of completed Anglo-Indian School-Leaving Certificates or Oriental High School Leaving Certificates issued under the authority of the

* On payment of Rs. 10.

Government of Madras, declared eligible for admission to a University Course of Study according to the rules and directions which the Syndicate may prescribe from time to time.

(iii) (*a*) Persons who have passed the Matriculation Examination or Entrance Examination of other Indian Universities and holders of completed Secondary School-Leaving Certificates issued under the authority of States in India who have been declared eligible for admission to a University Course of Study by the University in the State concerned, provided that recognition shall be granted in such cases on a reciprocal basis:

Provided, however, that a pass in the First or Second Division only of the Higher Secondary Certificate Examination of Hyderabad shall be accepted.

(*b*) Persons who have passed the Secondary School-Leaving Certificate Examination, and Anglo-Indian School-Leaving Certificate Examinations, in respect of which no eligible List is issued by a University, and persons who have passed other Public Examinations, subject to such conditions as may be prescribed by the Syndicate from time to time:

(iv) Holders of Oxford and Cambridge School Certificates, whose Certificates satisfy the conditions laid down by the Syndicate.

Note:—List of examinations recognised as equivalent to the Matriculation Examination for purposes of admission to the Pre-University Course:—

(i) Secondary School-Leaving Certificate Examination of Andhra University *provided* the candidates have been declared eligible by the Andhra or Sri Venkateswara University.

(ii) The Anglo-Indian High School Certificate Examination of the Andhra University. Candidates should have qualified themselves for the certificate and been declared eligible for admission to a course of study in the Andhra University.

(iii) S.S.L.C. Examination of Mysore provided the candidates have been declared eligible for admission to a course of study in the Mysore University.

(iv) S.S.L.C. Examination of Kerala provided the candidates have been declared eligible for admission to the Junior Intermediate or Pre-University class of the University of Kerala.

Note :—Certificate should be scrutinised with reference to the marks (entered in page 11) obtained by the candidates even if the certificates contain the eligibility stamp in page 15 so as to avoid ineligible candidates being admitted in this University.

(v) Secondary School Certificate Examination of the Government of Bombay provided such certificate-holders produce a certificate from the Registrar, Bombay University that they are eligible for *enrolment* as students of that University.

(vi) The Higher Secondary Certificate Examination of Hyderabad provided the candidates have passed the Examination in the *first or second division* and have qualified for the certificate

(vii) The Final passing out Examination of the Training Ship "Dufferin."

(viii) The Indian Air Force Matriculation Test.

(ix) The Indian Army Special Certificate of Education.

(x) Higher Education Test in the Royal Indian Navy.

(xi) High School Examination of Burma provided the candidates have been declared eligible for Matriculation in the University of Rangoon.

(xii) *A full pass* at the *first sitting* in the General Certificate of Education (Ceylon Senior School Certificate Examination) Examination in the Ordinary or Lower Level provided the holder has passed the Examination in six subjects (which should include English and another language) *or* pass in six subjects (which should include English and another language) with four credits secured *at one or more sittings.*

(xiii) Higher School Certificate Examination of Ceylon.

(xiv) School Final Examination of the Board of Secondary Education, West Bengal, Calcutta.

(xv) High School Examination of the Board of Secondary Education, Madhya Pradesh.

(xvi) Matriculation or Entrance Examination of Statutory Universities of the British Commonwealth.

(xvii) Holders of the Oxford or Cambridge Senior School Certificates, provided the candidates have passed the Examination in English language and five other subjects.

(xviii) Secondary School Examination of the Bihar School Examination Board, Patna.

(xix) Bangalore European High School Examination.

(xx) Admission Examination of the Banaras Hindu University.

(xxi) High School Examination of the Board of Secondary Education, Orissa.

(xxii) High School Examination of the Board of Secondary Education, Rajasthan.

3. The conditions under which students may be admitted to the Courses of Study for Oriental Titles shall be as follows:—

Entrance Tests to O.T. Courses. No candidate shall be admitted to the Courses of Study for any of the Oriental Titles unless he has passed:

A

The Matriculation Examination of this University or an examination accepted by the Syndicate as equivalent thereto, or

B

the Entrance Test prescribed below:—

(i) SIROMANI AND VIDVAN (*a*)

No person shall be admitted to the Courses of Study for the Siromani and Vidvan (*a*) Examinations unless he has passed the Entrance Test conducted by the Educational Department of the Government of Madras.

(ii) VIDVAN (*b*) AND (*d*), ADIB-I-FAZIL, MALPAN AND SOPPAR.

In the case of candidates for the Vidvan (*b*) and (*d*), Adib-i-Fazil, Malpan and Soppar Titles, the Entrance Test shall be in the selected language or main language (if there are two languages) and shall consist of the two papers set for the Intermediate Examination in Arts and

Science in the corresponding language under Part II with the following modifications:—

(*a*) A few questions on Grammar shall be added in that part of the Intermediate (Part II) first paper intended for the candidates for the above Titles, and

(*b*) the question on Translation in the second paper for the Intermediate Examination shall be replaced by questions on Paraphrase or Composition.

Candidates obtaining not less than 40 per cent of the total marks in the two papers taken together shall be certified to be eligible for admission to the respective Courses.

(iii) AFZAL-UL-ULAMA, MUNSHI-I-FAZIL, TABIB-I-KAMIL AND AFZAL-UL-ATIBBA.

There shall be two Written papers of 3 hours' duration each. Each paper shall carry 100 marks.

(1) Prose and Poetry Text-books.

(2) Diniyyat.

Candidates for Afzal-ul-Ulama and Afzal-ul-Atibba shall pass the Test in Arabic and candidates for Munshi-i-Fazil and Tabib-i-Kamil shall pass the Test in Persian.

In regard to the test in Arabic, the papers shall be set in the Arabic Language, and the candidates shall have the option to write their answers either in Arabic or in their own mother-tongue, *viz.*, Urdu, Tamil, Malayalam.

In regard to the test in Persian, the paper shall be set in Urdu, and the candidates are required to answer in Urdu only.

Candidates obtaining not less than 40 per cent of the total marks in the two papers taken together shall be

certified to be eligible for admission to the respective courses.

It shall be competent for the Syndicate to recognize the Admission Tests of other Universities or examinations conducted by Indian States as qualifying for admission to the Vidvan and Siromani Courses of this University.

Conditions of admission to Sangita Siromani Course.

4. Admission to the Sangita Siromani Course shall be open to—

(1) Holders of completed Secondary School-Leaving Certificates with Indian Music as an optional subject, issued under the authority of the Government of Madras, declared eligible for admission to a course of study in this University.

(2) Holders of completed Secondary School-Leaving Certificates without Indian Music as an optional subject, issued under the authority of the Government of Madras, declared eligible for admission to a Course of Study in this University or an examination of some other University or Body recognized by the Syndicate as equivalent thereto, and who have also passed the Technical Examination in Indian Music (Lower Grade) of the Government of Madras, or the Teacher's Certificate Examination in Indian Music of the Government of Madras.

(3) Candidates who have passed the Technical Examination in Indian Music (Lower Grade) of the Government of Madras or the Teacher's Certificate Examination in Indian Music of the Government of Madras and in

English of the Matriculation Examination of the University of Madras.

Provided, however, it shall be competent for the Syndicate to permit a candidate who has passed the Matriculation Examination of this University or has been declared eligible for admission to a course of study in this University, but has not passed the Technical Examination in Indian Music (Lower Grade) of the Government of Madras to join the Sangita Siromani Course on the recommendation of the Head of the Institution, provided that the candidate qualifies in the Technical Examination in Indian Music (Lower Grade) of the Government of Madras before the end of the first academic year.

Provided further, it shall be competent for the Syndicate to permit candidates who have passed the Technical Examination in Indian Music (Lower Grade) of the Government of Madras, to join the Sangita Siromani course on the recommendation of the Head of the Institution provided that the candidates pass the Matriculation or take the S.S.L. Certificate Examination and are declared eligible for a University course of study before sitting for the Sangita Siromani Preliminary Examination. This proviso shall be in force for a period of five years from the academic year 1958-59.

Recognition of Examinations of other Universities and Bodies.

5. For the purpose of admission to courses of study in this University, the Syndicate shall have the power to recognize the Pre-University Examinations of other Indian Universities and of duly constituted Boards of Secondary and Intermediate Education, and Degree Examinations of other Indian Universities, as equivalent to the corresponding examinations of this University, subject to the following conditions :—

(1) that the normal length of the course prescribed leading to the examination sought to be

recognized shall not be less than that for the corresponding examination of this University;

(2) that the Course of Study for the examination sought to be recognized shall have been pursued in a University or in a College recognized by a University, provided that it shall be competent for the Syndicate in special cases to waive the above conditions and

(3) that, in the case of admission to a professional course, the restriction of subjects, if any, imposed on candidates of this University shall be applicable to candidates who have passed examinations of other Universities or Bodies.

6. For the purpose of admission to courses of study in this University, examinations conducted by Bodies other than those mentioned in the above Ordinance may, in individual cases and on their merits, be recognized by the Syndicate as equivalent to the corresponding examinations of the University.

7. Unless specific provision has been made in the respective Regulations, candidates other than those who have qualified from this University shall not be eligible for exemption from any part or parts of the Course of Study and/or examination for any Degree, Diploma or title, as the case may be.

Concessions re: Refugees from other Provinces.

8. Notwithstanding anything that may be contained to the contrary in the Laws of the University, it shall be competent for the Syndicate, with regard to students whose Courses of Studies are shown to the satisfaction of the Syndicate to have been interrupted owing to disturbed conditions in

certain Provinces in the year 1947, to dispense with a strict compliance with the Laws, as may be decided in each and every case, in regard to admission to courses of studies or attendance at courses of this University or such other conditions as may be laid down in the Laws.

9. Notwithstanding anything contained in the Laws of the University, it shall be competent for the Syndicate in the case of foreign nationals, admitted to courses of study in this University for the Pre-University or B.A. Degree or B.Sc. Degree (Three- year) or B.Sc. Degree in Home Science, whose mother tongue is not any of the Indian languages or who have not taken a language recognised by this University of the required standard for the preceding qualifying examination to exempt them from the course and examination in Part II of the Pre-University or B.A. Degree or B.Sc. Degree or B.Sc. Degree in Home Science, as the case may be.

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CHAPTER XXXVI.

Conduct of Examinations

Ordinances under Section 31 (h) of the Act.

Place of Examinations.

1. (*a*) All examinations shall be held in Madras and in such other places as may be fixed by the Syndicate. A list of the centres at which examinations will be held shall ordinarily be published annually in the *Gazette* in the preceding April.

(*b*) When there are more centres than one for a written examination question papers shall be given out to candidates on the same day and at the same hour in every centre.

Gazetted holidays *dies non.*

2. Gazetted holidays shall be considered *dies non* for purposes of the University Examinations, but the Syndicate may, for special reasons, decide to hold examinations on such holidays.

Examinations held twice in a year.

3. The following examinations shall be held twice in the academic year:—

- * Intermediate.
- Pre-University.
- * B.A. (Old Regulations).
- B.A. (New Regulations).
- * B.Sc. (Old Regulations).
- B.Sc. (New Regulations).
- B.Sc. (Home Science).
- * B.Com. (Old Regulations).
- B.Com. (New Regulations).
- Pre-Professional.
- B.T.
- Law—F.L. and B.L.
- M.B. & B.S.
- B.S.Sc.—Part I and Part II.
- Diploma in Gynaecology and Obstetrics.
- Diploma in Venereology.

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* The examinations will be conducted under Transitory Regulations.

Diploma in Dermatology.
Diploma in Ophthalmology.
Diploma in Oto-Rhino-Laryngology.
Diploma in Radiology.
Diploma in Orthopaedics.
Diploma in Tuberculosis.
Diploma in Child Health.
Diploma in Clinical Pathology.
Diploma in Anaesthesia.
Diploma in Dietetics.
M.D. or M.S. Part I.
B. Pharm.
B.D.S.
B.Sc. (Nursing).
B.E.
B.Sc. (Ag.)
B.V.Sc.
B.Com.

The other examinations shall be held once a year.

Standard of Question Papers.

4. The papers set in any subject shall be such as a candidate of decided ability well prepared in the subject can reasonably be expected to answer within the time allotted.

Nature of Questions.

5. No question shall be put at any University examination calling for a declaration of religious belief, or profession or political views on the part of the candidate, and no answer given by any candidate shall be objected to on the ground of its giving expression to any particular form of religious belief, profession or political views.

Conduct of Examinations.

6. All examinations, except practical and *viva voce* examinations, shall be conducted by means of printed, typed or written papers to be set and answered, except in the case of Indian languages and languages for the Oriental Titles Examinations, in English unless otherwise stated therein.

It shall also be competent for the Syndicate to permit candidates to appear for and answer the papers in a Group under Part III of the B.A. Degree Examination in an Indian Language, provided one year's notice is given by the college concerned.

It shall be competent for the Syndicate to permit candidates to appear for and answer the papers in Section D of the Course of study for the B.T. Degree Examination ('Methods of Teaching and learning—Special') in an Indian language provided one year's notice has been given by the college concerned.

It shall be competent for the Syndicate to permit candidates of the college to appear for and answer the paper or papers in a subject or subjects of the B.T. Degree examination in the Indian Languages provided one year's notice is given by the College concerned. This shall not apply to " (D) III—Methods of Teaching and learning—English."

Examination Boards.

7. Examination Boards shall, whenever there are candidates, be appointed annually by the Syndicate for the following subjects or groups of subjects:—

i. English.
ii. Greek and Latin
iii. French
iv. German.
v. Sanskrit.
vi. Marathi.
vii. Hindi.
viii. Oriya.
ix. Bengali.
x. Gujerati.
xi. Burmese.
xii. Sinhalese.
xiii. Hebrew and Syriac.
xiv. Arabic, Persian and Urdu.

xv.	Tamil	xxxiii.	Law.
xvi.	Telugu.	xxxiv.	Medicine.
xvii.	Kannada.	xxxv.	Sanitary Science.
xviii.	Malayalam.	xxxvi.	Pharmacy.
xix.	Mathematics.	xxxvii.	Dental Surgery.
xx.	Statistics.	xxxviii.	Nursing.
xxi.	Physics.	xxxix.	Engineering.
xxii.	Chemistry.	xl.	Agriculture.
xxiii.	Botany.	xli.	Horticulture.
xxiv.	Zoology including Physiology.	xlii.	Veterinary Science.
		xliii.	Technology.
xxv.	Geoolgy.	xliv.	Commerce.
xxvi.	Home Science.	xlv.	Indian Music.
xxvii.	Anthropology.	xlvi.	Western Music.
xxviii.	Philosophy.	xlvii.	Drawing & Painting.
xxix.	History and Politics.	xlviii.	Journalism.
xxx.	Economics.	xlix.	Social Service.
xxxi.	Geography.	l.	Physical Education.
xxxii.	Teaching.		

The Syndicate may appoint separate Boards of Question Paper-Setters and Boards to conduct examinations, as it deems fit. Joint or separate Boards may be appointed to conduct different examinations.

Chairman of Boards and their duties.

8. The Syndicate shall appoint a Chairman for each Board, who shall, at the conclusion of every examination, forward to the Syndicate a report on the manner in which the examination has been conducted.

Special Boards.

9. The Syndicate may appoint Special Boards of Examiners to supervise the Matriculation Examination.

Boards's report to the Syndicate.

10. The Examination Boards shall report to the Syndicate the results of all examinations conducted or supervised by them.

Approval and publication of results.

11. The Syndicate shall have power to approve and publish the results.

Manner of publication of results of successful candidates.

12. In the examinations for Degrees in Law, Medicine, Engineering, Agriculture and Commerce and for the final Part of the Degrees of the B.A. (Honours) and B.Sc. (Honours), the names of all successful candidates shall be published in the order of proficiency. In the case of the other examinations the names of candidates who are placed in the First Class shall be published in the order of proficiency ; in the case of the B.A. and B.Sc. Degree Examinations, the names of candidates who are placed in the Second Class shall also be published in the order of proficiency. The names of other successful candidates shall be published in the order in which they were registered for the examination.

Pass Certificates.

13. A certificate signed by the Registrar shall be given to each successful candidate at an examination other than an examination for a Degree, Title or Diploma. The certificate shall set forth the date of the examination, the subject in which the candidate was examined, the class in which he was placed, and the subjects, if any, in which he gained distinction in accordance with the Regulations.

Diplomas.

14. A Diploma under the seal of the University and signed by the Vice-Chancellor shall be presented at a Convocation to each successful candidate at an examination for a degree, Title or Diploma. The Diploma shall set forth the date of the examination, the subjects in which the candidate was examined, the class in which he was placed, and the subjects, if any, in which he gained distinction in accordance with the Regulations.

CHAPTER XXXVII.

Fees.

1. Candidates for Examinations, Diploma and Degrees shall pay the following fees :—

Statute **Examination Fees.**

(*a*) *Examination fees* :

		RS.
Matriculation Examination	..	15
English Part Only	..	5
Pre-University Examination—		
Whole Examination	..	25
Part I —English	..	10
Part II—Second language	..	10
Part III—Optional subjects		18
Each additional subject	..	8
Intermediate Examination—		
(Under Transitory Regulations)		
Whole Examination	..	30
Part I only	..	12
Part II only	..	10
Part III only	..	20
For one subject under Part III	..	8
For each Science subject under Part III in which a practical test has been prescribed, an additional fee of	..	3
Three-year B.A. and B.Sc. Degree Examinations—		
Part I—English—		
(*a*) Three papers at the end of the second year	..	20
(*b*) One paper at the end of the third year	..	6

	RS.
Part II—Languages—	
(*a*) Two papers at the end of the second year ..	15
(*b*) One paper at the end of the third year ..	6

Three-year B.A. Degree Examination—

Part III—	
Group A ..	25
Group B ..	15

[*Note.*—In the case of Branch XII—Languages, where there are no Groups, the first two papers constitute Group B and the remaining four papers (Nos. 3 to 6) constitute Group A for purposes of Examination fees.]

Three-year B.Sc. Degree Examination—

	RS.
Part III—	
Group A ..	35
Group B ..	20

Three-year B.A. and B.Sc. Degree Examinations—

Part IV—Minor ..	6

Three-year B.Sc. (Home Science) Examination—

Part I—English ..	15
Part II—Second Language ..	15
Part III—	
Group A ..	15
Group B ..	50

	RS.
B.A. Degree Examination—(Two-year) (Under Transitory Regulations)	
First appearance—	
Whole Examination or any Part or Parts ..	50
Subsequent appearance—	
Whole Examination ..	50
Part I ..	22
Part II ..	12
Part III ..	28
B.A. (Honours) Degree Examination—	
Preliminary ..	15
Final ..	70
M.A. Degree Examination (Old Regulations) ..	70
B.Sc. Degree Examination—(Two year) (Under Transitory Regulations)	
Part I ..	15
Part II ..	45
B.Sc. (Honours) Degree Examination—	
Part I ..	15
Part II—Any Branch ..	75
(For all candidates, including Post-graduate course students)	
Science Subjects (Physics, Chemistry or any Natural Science Subject)—	
Subsidiary Subject or Subjects ..	30
Main Subject ..	45
M.Sc. (by Examination) ..	150

	RS.
M.A. Degree (New Regulations) (Whole Examination) ..	150
Part I only ..	70
Part II only ..	80
For subsequent appearence in any subject.	25
M.Sc. Degree (New Regulations) (Whole Examination) ..	200
Part I only ..	100
Part II only ..	100
Subsequent appearance in any subject ..	25
M.Sc. (Home Science) Examination ..	150
Three-year B.Com. Degree Examination—	
Part I—English ..	20
Part II—Second Language ..	8
Part III—	
Group A ..	15
Groups B and C ..	50
B.Com. Degree Examination—(two-year) (*Transitory Regulations*)	
Part I ..	15
Part II ..	7
Part III ..	38
B.Com. (Honours) Degree Examination—	
Part I ..	15
Part II ..	70
M. Com. Degree (Whole Examination) ..	150
Part I ..	70
Part II ..	80
Subsequent appearance in any subject ..	25
Pre-Professional Examination—	
Part I—English ..	8
Part II—Whole Examination ..	30
For each subject ..	10

	RS.
B.Sc. (Ag.) Degree Examination—	
First Examination ..	30
Second Examination ..	40
Final Examination ..	50
Subsequent appearance :	
For each subject for any Examination	15
B.Sc. (Ag.) Degree Examination (Revised Regulations—1952-53)—	
First Examination (Whole Examination) ..	40
Subsequent appearance (in subjects)—	
Each subject ..	15
Second Examination (Whole Examination)	50
Subsequent appearance (in subjects)—	
Each subject ..	15
Final Examination—	
Whole Examination ..	60
Subsequent appearance (in subjects)—	
Each subject ..	20
Examination for the Diploma in Horticulture ..	75
M.Sc. (Ag.) Degree (Whole Examination).	250
Subsequent appearance for any subject or Dissertation ..	25
B.V.Sc. Degree Examination (Old Regulations)	
Preliminary Examination ..	25
Intermediate Examination—Part I ..	30
Intermediate Examination—Part II ..	30
Final Examination ..	50
Subsequent appearance (in subjects)—	
For each subject in the Preliminary or Intermediate Examination ..	15
For each subject in the Final Examination ..	20

	RS.
B.V.Sc. Examination (New Regulations.)	
First Examination	50
Second Examination	50
Third Examination	60
Final Examination, Part I	40
Part II	40

For each subject at a subsequent appearance in any of the above examinations Rs. 20.

M. V. Sc. Degree (Whole Examination) ..	250
Subsequent appearance for any subject or Dissertation ..	25
B.Sc. (Tech.) Degree Examination— (Old Regulations)	
Whole Examination ..	125
Part I only ..	50
Part II only ..	75
Subsequent appearance (in subjects): For each subject under any Part ..	10
B. Sc. (Tech.) Degree Examination— (Four-Year Degree course) (New Regulations)	
First Examination ..	125
Second Examination ..	125
Third Examination ..	125
Final Examination ..	125
For each subject for any examination ..	30
B. Arch. Degree Examination—	
Intermediate Examination ..	150
Subsequent appearance in any subject.	25
Final Examination	150
Subsequent appearance in any subject.	25
B.T. Degree Examination —	
Whole Examination ..	35

	RS.
Subsequent appearance—	
Written Examination only ..	25
Practical Examination only ..	15
Additional Subject (Written and Practical) ..	15
M.Ed. Degree Examination ..	50
Subsequent appearance:	
Written papers only ..	35
Thesis only ..	20
B.L. Degree Examination:—	
F.L. Examination ..	50
For each Division ..	20
B.L. Degree Examination ..	70
For each Division ..	25
M.L. Degree Examination ..	150
LL.D. Degree ..	250
M.B. & B.S. Degree Examination (Old Regulations):	
First M.B. & B.S. Examination—	
Whole Examination ..	55
Part I only ..	20
Part II only ..	40
Separate subjects after first appearance:	
Part I—Organic Chemistry ..	20
Part II—Anatomy or Physiology ..	25
Second M.B. & B.S. Examination—	
Whole Examination ..	60
Part I only ..	25
Part II only ..	45
Separate subjects after first appearance:	
Part I—Pharmacology ..	25
Part II—Hygiene and Preventive Medicine or General Pathology with Bacteriology ..	25

		RS.
Final M.B & B.S. Degree Examination—		
First appearance :		
Whole Examination	..	85
Part I only—Forensic Medicine and Ophthalmology	..	35
Part II only	..	60
Separate subjects after first appearance:		
Part I—One subject (Forensic Medicine or Ophthalmology)	..	20
Part II—One subject (Medicine, Surgery or Obstetrics and Gynaecology)	..	25
M.B. & B.S. Degree Examination (Revised Regulations)		
First M.B. & B.S. Examination.		
Whole Examination ...	...	60
Subsequent appearance—		
Anatomy	...	30
Physiology	...	30
Chemsitry	...	10
Second M.B. & B.S. Examination—		
Whole Examination	..	60
Separate subjects after first appearance—Each	..	25
Final M.B. & B.S. Examination—		
First appearance:		
Whole Examination	..	85
Part I only	..	25
Part II only	..	70
Separate subjects after first appearance:		
Part I—One subject	..	25
Part II—One subject (Medicine, Surgery or Obstetrics and Gynaecology)—Each	..	30
Preventive and Social Medicine	..	25

	RS.
M.D. or M.S. Degree Examination (Old Regulations) ..	200
M.D. or M.S. Degree (New Regulations)	
Parts I and II ...	250
Part I only ...	100
Part II only ...	150
Diploma in Gynaecology and Obstetrics ..	75
Diploma in Venereology ..	75
Diploma in Dermatology ..	75
Diploma in Ophthalmology ..	75
Diploma in Oto-Rhino-Laryngology—	
Whole Examination ..	75
do. Part I ..	30
do. Part II ..	45
Diploma in Radiology—	
Whole Examination ..	75
do. Part I ..	30
do. Part II ..	45
Diploma in Orthopaedics ..	75
Diploma in Tuberculosis ..	75
Diploma in Child Health ...	75
Diploma in Clinical Pathology ...	75
Diploma in Anaesthesia ...	75
B.S.Sc. Degree Examination—	
Part I ..	60
Part II ..	100
B.Pharm. Degree Examination—	
Preliminary Examination :	
First appearance *or* Whole Examination ..	35
Subsequent appearance (by subjects)— Each subject ..	15
Final Examination :	
Part I—	
First appearance *or* Whole Examination	30

	RS.
Subsequent appearance (by subjects)—	
Each subject ..	15
Part II—	
First appearance *or* Whole Examination	50
Subsequent appearance (by subjects)—	
Each subject ..	20
B.D.S. Examination :	
First B.D.S. Examination—	
Whole Examination ..	50
Separate subjects after first appearance—	
(Anatomy or Physiology)—each ..	25
General Medicine or Metallurgy—each ..	15
Second B.D.S. Examination—	
Whole Examination ..	50
Separate subjects after first appearance—each ..	25
Third B.D.S. Examination—	
Whole Examination ..	60
Separate subjects after first appearance—each ..	25
Final B.D.S. Examination—	
Whole Examination ..	75
Separate subjects after first appearance—each ..	25
B.Sc. (Nursing) Examinations—	
Intermediate Examination in Science in Nursing ..	35
Subsequent appearance—	
Part I only ..	12
Part II only ..	15
Part III only ..	20
B.Sc. (Nursing) Degree Examination—	
Whole Examination ..	75

	RS.
Subsequent appearance—	
Part I only ..	10
Part II only ..	30
Part III only ..	40
B.E. Degree Examination—(Old Regulations)	
First B.E. Examination ..	30
Second B.E. Examination ..	40
Third B.E. Examination ..	45
Final B.E. Degree Examination ..	60
Subsequent appearance in any subject in any examination ..	10
B.E. Examination (New Regulations.)	
First B.E....	50
*Second B.E.	..
Third B.E.	50
Fourth B.E.	60
Final B.E.	60

Subsequent appearance in any subject in any examination Rs. 10.

Oriental Titles Examination—	
Entrance Test to the following Oriental Titles—	
Vidvan, Adib-i-Fazil, Malpan and Soppar and Titles in Arabic and Persian ..	10
Oriental Titles—	
Preliminary Examination ..	25
Final Examination ..	30
B.O.L. (Pass) Degree Examination—	
Part I ..	15
Part II ..	35
B.O.L. (Pass) Degree Examination (*Transitory Regulations*)—	
Part I ..	15
Part II-A, General Indian History ..	5

*Will be prescribed later.

	RS.
Part I and Part II-A, General Indian History ..	20
B.O.L. (Honours) Degree Examination—	
Preliminary ..	15
Final ..	70
Sangita Siromani Title—	
Preliminary :	
Whole Examination ..	25
Parts I and III for candidates under Regulation 9 of Chapter LVII ..	25
Part II only ..	10
Final—Whole Examination ..	35
Bachelor of Music (B.Mus.) Degree Examination—	
Whole Examination ..	50
Part I only ..	15
Part II only	25
Part III only ..	30
Examination for the Diploma in Economics.	50
Examination for the Diploma in Politics and Public Administration ..	50
Examination for the Diploma in Statistics ..	50
Subsequent appearance in a Special Subject	15
Examination for the Diploma in Modern European Languages (French or German)	20
Examination for the Diploma in Librarianship	
First appearance—	
Whole Examination or any Division or Divisions ..	30
Subsequent appearance :	
Whole Examination ..	30
Any Division ..	10
Examination for the Diploma in Geography.	50
Subsequent appearance—Dissertation only ..	20
Examination for the Diploma in Indian Music.	30

	RS.
Subsequent appearance—Practical Test in a subject or subjects (each subject) ..	15
Examination for the Diploma in Anthropology	50
Examination for the Diploma in Journalism ..	50
Subsequent appearance—	
Shorthand or Typewriting ..	6
Examination for the Diploma in Social Service ..	40
Examination for the Diploma in Archaeology.	75
Examination for the Diploma in Dietetics ...	75
Examination for the Certificate in Librarianship ..	5
Examination for the Certificate in Anthropology ..	15
Examination for the Certificate in Modern European Languages (French or German).	15
Examination for the Diploma in Physical Education ..	50
Examination for the Diploma in Business Management—	
Part I ..	25
Part II ..	35
Part III ..	35
Subsequent appearance in any subject ..	15
Certificate Course in Sciences and Humanities Examination.	
(*a*) Physics and Chemistry	30
(*b*) Botany and Zoology	30
(*c*) Mathematics and Physics ...	30

	RS.
(*d*) Mathematics and English or a Language	20
(*e*) History and English or a Language.	20
(*f*) Geography and English or a Language	20
(*g*) Geography and History	20

Research Degrees—

Degree of Master of Letters (M.Litt.) ..	150
Subsequent appearance for—Part I (Thesis) or Part II (Examination) ..	100
Degree of Master of Science M.Sc. ..	150
Subsequent appearance for—Part I (Thesis) or Part II (Examination) ..	100
Degree of Doctor of Philosophy (Ph.D.) ..	200
Subsequent appearance for—Part I (Thesis) or Part II (Examination) ..	100
Degree of Doctor of Letters (D.Litt.) ..	250
Degree of Doctor of Science (D.Sc.) ..	250

(*b*) *Degree or Diploma Fee*—

Diploma Fee (for taking Degree at a Convocation in person) ..	5
Degree *in absentia* Fee (including Diploma Fee) ..	15
M.A. Degree Fee ..	25
Diploma Fee (for Certificates and Diplomas given at a Special Meeting of the Senate) other than for Degrees taken at a Convocation ..	3

RS.

Diploma *in absentia* Fee (for Certificates and Diplomas given at a Special Meeting of the Senate) other than for Degrees taken at a Convocation .. 5

Provided that the above fees shall not be levied in the case of Honorary Degrees.

Statute—

Fees from Research Students and Fellows permitted to work in the Depts. of the University.

2. Research Students and Fellows (stipendiary and non-stipendiary) permitted to study in the Departments of the University or under any Teacher of the University shall pay the following fees :—

Persons working in Arts Departments—either Rs. 30 per annum or Rs. 10 per term (thrice in a year).

Persons working in Science Departments—eithre Rs. 45 per annum or Rs. 15 per term (thrice in a year).

Statute.

Recognition or Affiliation Fee.

3. A College applying for recognition or affiliation shall pay a fee at the rate of Rs. 150 for each member of the Inspection Commission appointed ; and a College applying for approval in courses in Oriental Titles shall pay a fee at the rate of Rs. 50/- for each member of the Commission appointed.

Statute—

Registration of Graduates Fee.

4. Graduates applying for Registration in the List of Registered Graduates shall pay a fee of Rs. 5.

RS.

5. *Other Fees*—

The following are the other fees prescribed :—

I. (1) For registration as a Matriculate. .. 5

Ordinance.

Fees for Matriculation, Diploma Courses, etc.

(2) (*a*) For registration as a candidate for the M.Litt., M.Sc. or Ph.D. Degree .. 50

(*b*) For undergoing the course for the M.Sc. Degree by Examination .. 200 per year.

(3)(*a*) For registration for the Degrees of M.D. and M.S. under Regulations 1 (ii) and 2 of the Laws governing those Degrees, and for registration as a student for any of the Diploma Courses in Medicine or Surgery [inclusive of attending lectures under (*b*) and (*c*) *infra*] .. 100

(*b*) Prescribed fee payable to the University in connection with the Course of Post-graduate Lectures in Medicine or Surgery arranged by the Council of Post-graduate Medical Education ;

and/or

(*c*) Prescribed fee payable to the University in connection with the Refresher Courses arranged by the Council of Post-graduate Medical Education .. 100

(4) For attending a part course specified in clause (3) above comprising one specific subject or branch in Medicine .. 50

	RS.
(5) For registration of application for admission to the Pre-Technological course ..	5
(6) For applying for admission to the B.Sc. (Tech.) Degree Course ...	5
(7) For undergoing the Pre-Technological course ..	150 for the year or 60 per term (the year consisting of three terms) if paid in instalments.
(8) For undergoing the B.Sc. (Tech.) Degree course (four years) (*New Regulations*)	200 per year or 75 per term, if paid in instalments.
(9) For undergoing the B.Sc. (Tech.) Degree Course (two years) ..	200 per year or Rs. 75 per term.
(10) For registration of application for admission to the B. Arch. Degree course ..	5
(11) For undergoing the B. Arch. Degree course ..	250 per year of three terms. *or* Rs. 85 per term.

	RS.
(12) For undergoing the Diploma Course in Economics (two years course—Rs. 100) ..	50 per year.
(13) For undergoing the Diploma Course in Economics (one-year course) ..	100
(14) For undergoing the course of lectures in one or more subjects for the Diploma Course in Economics (for each subject) ..	25
(15) For undergoing the Diploma Course in Politics and Public Administration (two years' course—Rs. 100) ..	50 per year.
(16) For undergoing the course of lectures in one or more subjects for the Diploma Course in Politics and Public Administration (for each subject) ..	25
(17) For undergoing the Diploma Course in Statistics (two years' course—Rs. 100) ..	50 per year.
(18) For undergoing the course of lectures in one or more subjects for the Diploma Course in Statistics (for each subject) ..	25
(19) For undergoing the Certificate Course in French or German (one-year course) ..	60

Provided, however, it shall be competent for the Syndicate to admit certain classes of applicants under the conditions enumerated in the proviso to Regulation 45 of Chapter LXXI, at a concession rate of Rs. 45/- per candidate.

RS.

(20) For undergoing the Diploma Course in French or German .. 60 per year.

Provided, however, it shall be competent for the Syndicate to admit certain classes of applicants under the conditions enumerated in the proviso to Regulation 45 of Chapter LXXXI, at a concession rate of Rs. 45/- per candidate.

(21) For undergoing the Diploma Course in Librarianship (one-year course) .. 60

(22) For undergoing the Diploma course in Geography (one-year course) .. 100

(23) For Field-work by students of the Diploma Course in Geography .. 25

(24) For undergoing the lectures in one or more subjects for the Diploma Course in Geography (for each subject) .. 25

(25) For undergoing the Diploma Course in Indian Music (two years' course—Rs. 75) 37½ per year.

(26) For undergoing the lectures in one or more subjects for the Diploma Course in Indian Music (for each subject) .. 25

(27) For undergoing the Certificate Course in Librarianship .. 20

(28) For undergoing the Certificate Course in Anthropology (one-year course) .. 50

(29) For undergoing the Diploma Course in Anthropology (two-years' course—Rs. 100) 50 per year

Field-work .. 25

RS.

(30) For undergoing the Diploma Course in Journalism (one-year course) .. 100

(31) For undergoing the lectures in Constitutional and International Law, for Branch II of the M.L. Degree course (for each year). 100

(32) For undergoing the Diploma Course in Business Management (three-years' course—Rs. 300) .. 100 per year.

(33) For undergoing the Diploma course in Archaeology (two years' course) .. 150 per year.

(34) For undergoing the Certificate Course in the Sciences and Humanities (for the benefit of Graduate teachers in High Schools). 100 Payable on admission

Ordinance.
Other Fees for getting Marks, Certificates, etc.

II. (1) (*a*) (i) For considering application for exemption from the production of attendance certificates (Applications from students studying in Constituent or Affiliated or Oriental Colleges or University Departments) .. 10

Provided, however, it shall be competent for the Syndicate to waive the payment of the above fee for exemption in cases where the candidates could not produce the prescribed certificates of attendance owing to the reduction of the College to a lower grade (voluntary or otherwise) or the closing down of the College, or the College not having been granted the necessary recognition or affiliation in time.

	RS.
(ii) Application for exemption from candidates after private study (non-collegiate) for Oriental Titles Examination Preliminary/Final, for Entrance Test to Oriental Titles (*vide* Ordinances 3 and 4 of Chapter XXXV, Regulation 9 (*d*) and (*e*) (iv) of Chapter XL.) ..	15
(iii) Application for exemption from candidates after private study (non-collegiate) for all examinations other than Oriental Titles and Entrance Test to Oriental Titles *viz.*, Matriculation, Pre-University, B.A., M.A. or other Examinations ..	25
(*b*) For scrutiny of application under Ordinance I (*b*) and (*c*) of Chapter XLI, Matriculation Examination ..	10
(2) For considering application for recognition of an examination of another University or examination conducted by other Bodies outside the jurisdiction of the University.	5
(3) For considering application for combination of attendances earned by a candidate in two colleges ..	5
(4) For scrutiny of Secondary School-Leaving Certificates of candidates who sat for the examination prior to 1926, and of those who sat for the examination within the Madras Presidency and outside the University area ..	5*

* Also for scrutiny of Certificates with Shorthand or Typewriting as optional, from the examination of 1932.

		RS.
(5)	For scrutiny of Madras European High School-Leaving Certificates of candidates who sat for the examination prior to 1927, and of those who sat for the examination outside the University area after 1927 ..	5
(6)	For scrutiny of Bangalore European High School Certificates of candidates who sat for the examination prior to 1933 and in 1951 *et seq.* ..	5
(7)	For considering application for recognition of change of name ..	10
(8)	For endorsing in the University records in regard to the change in the date of birth, whether due to clerical error or otherwise	10
(9)	For obtaining a duplicate Diploma or Certificate ..	10
(10)	For obtaining a Provisional Certificate ..	5
**(11)	For application for Intermediate Certificate received by the Registrar after the prescribed date ..	3
(12)	For application for Certificates and Diplomas (other than Intermediate) received by the Registrar one year after the examination ..	3
(13)	For application for Certificates and Diplomas received by the Registrar five years after the examination ..	10
(14)	For obtaining a Migration Certificate ..	5

** Dates will be notified in the *Fort St. George Gazette* when publishing the results.

	RS.
(15) (*a*) For issue of a certified extract from Convocation Reports ..	5
(b) For issue of a certified extract from the Eligible List (S.S.L.C. or E.S.L.C. or E.H.S. Examination) ..	5
(16) For issue of a certified extract from the Registers or Records of the University (other than from the Convocation Reports and eligible Lists) ..	2
(17) (*a*) For furnishing to a candidate a statement of marks obtained by him at the Matriculation Examination on each occasion. (March 1952 *et seq*). ..	1
(*Note* :—This fee of Re 1/-should be paid by all candidates appearing for the Matriculation Examination, along with their examination fees.)	
(*b*) For furnishing to a candidate a statement of marks obtained by him at the Intermediate Examination on each occasion. (March 1945 *et. seq*). ..	1
(*Note* :—This fee of Re. 1/-should be paid by all candidates appearing for the Intermediate Examination along with their examination fees.)	
(*c*) For furnishing to a candidate appearing for the whole examination (other than Matriculation and Intermediate examinations) a statement of marks obtained by him at the examination ..	2

	RS.
For each recognised part or parts of the examination ..	1

(*Note* :—The fee shall be paid by all candidates appearing for the whole examination or in Part or Parts thereof.)

(*d*) For furnishing to a candidate a statement of marks obtained by him at the Intermediate Examination for each appearance (whether for a Part or Parts or for the Whole Examination) at examinations prior to March 1945 or for furnishing duplicate statement of marks for each appearance ..	2
(18) For checking the addition of the marks in each paper of a candidate for any University Examination (for each paper) ..	10
(19) (*a*) For supplying to Principals of Colleges marks of all the successful candidates at the Matriculation and Intermediate Examination (for each examination of the year) ..	20
(*b*) For supplying to Principals of Colleges marks of all the candidates (passed and failed) from a particular College for the B.A. (Old Regulations), B.Sc. (Old Regulations), B.A. (Hons.), B.Sc. (Hons.), F.L.,B.L., M.B. & B.S., B.T., F.E., B.E., B.Sc. (Ag.) or any other examination *for fifty candidates, or less.*	Annas 8 per candidate subject to a maximum fee of Rs. 10 for an examination, for fifty candidates or less.

CHAPTER XXXVIII.

Dates for payment of Examination Fees and Submission of Certificates, Dates of Commencement of Examinations, and Dates of Publication of Results of Examinations.

Ordinance.

Dates of Examinations, dates of submission of applications and attendance certificates, and dates of publication of results.

The latest dates on which fees for examinations shall be payable, and application for admission thereto and certificates to be produced by candidates are to be submitted to the Registrar in the Forms prescribed, the dates on which examinations shall begin, and the dates on which results of the examination shall be published at the University Buildings shall be :—

Examinations.	Last date for receipt of applications, together with the receipt of payment of fees, in the Registrar's Office.	Last date for submitting certificates.	Date of commencement of Examinations.	Last date of publication of results.
Arts and Science —				
Matriculation ...	December 15	March 9	March 20	3rd Monday in May
Pre-University ...	February 15 or July 15	March 31 or August 25	7th April (or the next working day) or Sep. 15.	1st June or 4th Monday in October
* Intermediate ...	January 7 or July 15	March 9 or August 25	March 20 or September 15	3rd Monday in May or 4th Monday in October
* B.A. Part I ...	January 7 or July 15	March 9 or August 25	March 20 or September 15	4th Monday in May or 4th Monday in October
Part II ...	Do.	Do.	Immediately after the Examination in Part I	Do.
Part III ...	Do.	Do.	Immediately after the Examination in Part II	Do.
* B.A. (Honours) Preliminary.	December 20 or July 15	March 9 or August 25	March 20 or September 15	4th Monday in May or 4th Monday in October
* B.A. (Honours) Final.	December 15	March 9	March 20	2nd Monday in May
* M.A. (Old Regulations).	Do.	Do.	Do.	Do.

* Examinations conducted under Transitory Regulations. Particulars regarding the dates of commencement of examinations in Parts II and III of the B.A. Degree and Part II of the B.Sc. Degree will be notified in the Fort St. George Gazette when the time-tables are published.

Examinations.	Last date for receipt of applications, together with the receipt of payment of fees, in the Registrar's Office.	Last date for submitting certificates.	Date of commencement of Examinations.	Last date of publication of results.
*B.Sc. Part I ...	January 7 or July 15	March 9 or August 25	March 20 or September 15	4th Monday in May or 4th Monday in October
Part II ...	Do.	Do.	Immediately after the Examination in Part I	Do.
*B Sc. (Honours) Part I.	December 20 or July 15	March 9 or August 25	March 20 or September 15	4th Monday in May or 4th Monday in October.
Part II (Main)	December 15	March 9	March 20	3rd Monday in May
*B.Sc. (Honours) † Part II (Subsidiary).	December 20 or July 15	March 9 or August 25	The same as for B A. and B Sc Subsidiary	4th Monday in May or 4th Monday in October
‡ B.A. & B.Sc. (Three year)—(New Regulations)				
Part I-(A)—English.	January 10 or July 15	March 15 or August 25	April 1 or September 15	4th Monday in May or 4th Monday in October

* Examinations conducted under Transitory Regulations.

Particulars regarding the dates of commencement of examinations in Parts II and III of the B. A. Degree and Part II of the B. Sc Degree will be notified in *Fort St. George Gazette* when the time-tables are published.

† Particulars regarding the date of commencement of the examination in Part II—Subsidiary Subjects (only) of the B.Sc. (Hons.) Degree will be notified in the *Fort St. George Gazette* when the time-tables are published.

‡ NOTE :—The examination will commence in respect of Part I-A on April 1 and September 15.

For the other Parts the dates of commencement of examinations will be in the order mentioned above. Where Groups have not been specified in Part III, the examinations will be in the respective papers as in the regulation.

Examinations.	Last date for receipt of applications, together with the receipt of payment of fees, in the Registrar's Office.	Last date for submitting certificates.	Date of commencement of Examinations	Last date of publication of results.
B.A. & B.Sc., (Three year)—(New Regulations)—(*contd.*)				
Part II-(A)—Language.	January 10 or July 15	March 15 or August 25	...	4th Monday in May or 4th Monday in October
Part III-(Gr. B)—Ancillary Subject.	Do.	Do.	...	Do.
Part IV—Minor.	Do.	Do.	...	Do
Part I-B—English.	Do.	Do	...	Do.
Part II-B—Language.	Do.	Do	...	Do.
Part III—Gr. A. Subject.	Do.	Do.	...	Do.
* B.Sc. (Home Science) (Three year)—				
Part I ...	January 10 or July 15	March 15 or August 25	April 1 or September 15	4th Monday in May or 4th Monday in October
Part II ...	Do.	Do.	...	Do.
Part III—Gr. A.	Do.	Do.	...	Do.
,, Gr. B.	Do.	Do.	...	Do.

* NOTE :—The examination in respect of Part I will commence on April 1 and September 15. For the other Parts, date of commencement of examinations will be in the order mentioned above.

Examinations.	Last date for receipt of applications, together with the receipt of payment of fees, in the Registrar's Office.	Last date for submitting certificates.	Date of commencement of Examinations.	Last date of publication of results.
† B Com. (Three Year) (New Regulations)—				
Part I ...	January 10 or July 15	March 15 or August 25	April 1 or September 15	4th Monday in May or 4th Monday in October
Part II ...	Do.	Do.	..	Do.
Part III ... Groups B & C.	Do.	Do.	...	Do.
Part III ... Group A.	Do.	Do	..	Do.
M.Sc.(By Exam.)	January 20	April 20	May 1	2nd Monday in June
M. A. (New Regulations)—				
Part I ...	January 20	April 1	April 15	2nd Monday in June
* Part II ...	Do.	Do.	Do.	Do.
M.Sc. (New Regulations)—				
Part I ...	Do.	Do.	Do.	Do.
* Part II ...	Do.	Do.	Do.	Do.

† NOTE :—The examination in Part I will be held on April 1 and September 15.

The dates of commencement of examinations in other Parts will be in the order mentioned above.

* NOTE:—Wherever Parts have not been specified, the examination will be held at the end of the Second year on the above dates specified for Part II.

Examinations.	Last date for receipt of applications, together with the receipt of payment of fees, in the Registrar's Office.	Last date for submitting certificates.	Date of commencement of Examinations.	Last date of publication of results.
M.Sc. (Home Science)— Branch I or Branch II; M. Com. (New Regulations)—	January 20	April 20	May 1	2nd Monday in June
Part I ..	Do	April 1	April 15	Do.
*Part II ...	Do.	Do.	Do.	Do.
M.Litt. or M.Sc.	January 31 or August 31	...	...	...
Ph.D. ...	January 31 or August 31	...	...	...
D.Litt. or D.Sc.	January 31 or August 31	...	...	...
Pre-Professional.	February 15 or July 15	March 31 or August 25	7th April (or the next working day) or 1st September (or the next working day).	15th May or 15th Sept.
Law— F.L. and B.L. ...	January 20 or July 15	April 1 or September 10	April 15 or September 25	2nd Monday in June or 2nd Monday in Nov.
M.L. ...	December 20	...	July 15	1st Monday in Sept.
LL.D. ...	January 31 or August 31	...	...	...

* NOTE :—Wherever Parts have not been specified, the examination will be held at the end of the second year on the above dates specified for Part II

Examinations.	Last date for receipt of applications, together with the receipt of payment of fees, in the Registrar's Office.	Last date for submitting certificates.	Date of commencement of Examinations.	Last date of publication of results.
Medicine—				
First M.B & B.S.	October 8 or January 20	November 20 or March 20	December 1 or April 1	December 20 or April 20
Second M.B. & B.S.	August 8 or January 20	Sep. 20 or March 20	October 1 or April 1	Oct. 20 or April 20
Final M.B. & B.S.	October 8 or January 20	November 20 or March 20	December 1 or April 1	December 20 or May 1
M.D. or M.S. (Old Regulations).	January 20	January 20	March 15	May 1
M.D. or M.S. (New Regulations).				
Part I ..	January 20 or October 8	March 1 or November 20	March 15 or December 1	April 20 or December 20
Part II ...	January 20	January 20	March 16	May 1
Diploma in Gynaecology and Obstetrics.	January 20 or July 15	January 20 or July 15	April 1 or October 15	May 1 or Nov. 15
Diploma in Venereology.	Do.	Do.	Do.	Do.
Diploma in Dermatology.	Do.	Do.	Do.	Do.
Diploma in Ophthalmology.	Do.	Do.	Do.	Do.
Diploma in Oto-Rhino-Laryngology.	Do.	Do.	Do.	Do.

Examinations.	Last date for receipt of applications, together with the receipt of payment of fees, in the Registrar's Office.	Last date for submitting certificates.	Date of commencement of Examinations.	Last date of publication of results.
Diploma in Radiology.	January 20 or July 15	January 20 or July 15	April 1 or October 15	May 1 or Nov. 15
Diploma in Orthopaedics.	Do.	Do.	Do.	Do.
Diploma in Tuberculosis.	Do.	Do.	Do.	Do.
Diploma in Child Health.	Do.	Do	Do.	Do.
Diploma in Clinical Pathology.	Do.	Do.	Do.	Do.
Diploma in Anaesthesia.	Do.	Do.	Do	Do.
B.S.Sc.—Part I ...	November 1 or February 1	January 10 or April 5	January 20 or April 15	2nd Monday in February or May 1
Part II ...	May 8 or September 1	July 5 or November 10	July 15 or November 20	2nd Monday in August or Dec. 20
B. Pharm.—				
Preliminary	January 20 or August 8	March 20 or September 20	April 1 or October 1	April 20 or October 20
Final—				
Part I	January 20 or October 8	March 20 or November 20	April 1 or December 1	April 20 or December 20
Part II	Do.	Do.	Immediately after Part I	Do.

Examinations.	Last date for receipt of applications, together with the receipt of payment of fees, in the Registrar's Office.	Last date for submitting certificates.	Date of commencement of Examinations.	Last date of publication of results.
B D S.—				
First Examination.	January 20 or August 8	March 20 or September 20	April 1 or October 1	April 20 or October 20
Second Examination.	January 20 or October 8	March 20 or December 1	April 1 or December 10	May 1 or January 5
Third Examination.	Do.	Do.	Do.	Do.
Final Examination.	Do.	Do.	Do.	Do.
B.Sc. (Nursing) Intermediate and Final	January 20 or July 15	March 20 or October 1	April 1 or October 15	May 1 or Nov. 15
Engineering—(Old Regulations) First B.E. ...	December 20 or July 15	March 9 or August 31	March 20 or September 25	1st Monday in May or 2nd Monday in Nov.
Second B.E. ...	Do.	Do.	Immediately after First B.E. Examination.	Do.
Third B.E. ...	Do.	Do.	March 20 or September 25	Do.
Final B.E. Degree.	Do.	Do.	Immediately after Third B.E. Examination.	Do.
Teaching—B.T. ...	January 20 or July 15	March 19 or September 10	April 1 or September 20	4th Monday in May or 4th Monday in Nov.

Examinations.	Last date for receipt of applications, together with the receipt of payment of fees, in the Registrar's Office.	Last date for submitting certificates.	Date of commencement of Examinations.	Last date of publication of results.
B.T.—(*contd.*)				
*Practical Test (for deferred candidates).	...	...	First week of March	...
M.Ed. ...	December 20	March 19	April 1	4th Monday in May
Agriculture—				
B.Sc (Ag.) First Examination.	January 7 or July 15	March 9 or Sept. 15	April 1 or October 1 (Forenoon)	3rd Monday in May or 3rd Monday in November.
Second Examination.	Do.	Do.	April 1 or October 1 (Afternoon)	Do.
Final Examination.	Do.	Do.	April 1 or October 8	Do.
Diploma in Horticulture.	January 20	July 1	July 20	4th Monday in August
Veterinary Science (Old Regulations)				
B.V.Sc. Preliminary ...	January 20 or July 15	March 15 or September 15	April 1 or October 1	2nd Monday in May or 1st Monday in November.

* **Note.**—The first test for the students will be conducted by the Colleges in February *vide* Regulation 4(*b*) of Chapter LXXV.

Examinations.	Last date for receipt of applications, together with the receipt of payment of fees, in the Registrar's Office.	Last date for submitting certificates.	Date of commencement of Examinations.	Last date of publication of results.
B.V.Sc.—(*contd.*)				
Intermediate—				
Part I ...	January 20 or July 15	March 15 or September 15	April 1 or October 1	2nd Monday in May or 1st Monday in November.
Part II ...	Do.	Do.	Do.	Do.
Final ...	April 15 or October 15	June 1 or December 1	June 15 or December 15	4th Monday in July or 4th Monday in January
M.V.Sc. ...	January 20	March 15	April 1	2nd Monday in May
M.Sc. (Ag.) ...	March 1	May 10	May 20	3rd Monday in June
B.Sc. (Technology)-(two year)				
Part I ...	January 20	March 19	April 1	3rd Monday in May.
Part II ...	Do.	Do.	Immediately after Part I	Do.
B. Arch.:—				
Intermediate Examination.	January 20	April 1	April 15	2nd Monday in June
Final Examn.	do	do.	do	do
B Com.—(Old Regulations)				
Part I ...	December 20 or July 15	March 9 or August 25	March 20 or September 15	4th Monday in May or 4th Monday in October
Part II ...	Do.	Do.	Immediately after Part I	Do
Part III ...	Do.	Do.	Immediately after Part II	Do

Examinations.	Last date for receipt of applications, together with the receipt of payment of fees, in the Registrar's Office.	Last date for submitting certificates.	Date of commencement of Examinations.	Last date of publication of results
B.Com.(Honours)				
Part I ...	December 20 or July 15	March 9 or August 25	March 20 or September 15	4th Monday in May or 4th Monday in October
Part II ...	December 15	March 9	March 20	3rd Monday in May
Oriental Title—				
Entrance Test to Vidvan Course.	November 15	...	Same day as Part II—Second Language—Intermediate Examination in March	4th Monday in May
Oriental Titles—Preliminary ...	November 15	March 9	March 27	4th Monday in May
..	Do.	Do.	Do.	Do.
Part I ...	November 15 or July 15	March 9 or August 25	March 20 or September 15	4th Monday in May or 4th Monday in October
Part II ...	Do.	Do.	†March 27 or September 22	Do.
B.O.L.(Honours)—Part I ...	December 20 or July 15	March 9 or August 25	March 20 or September 15	4th Monday in May or 4th Monday in October
Part II ..	December 15	‡March 9	March 20	4th Monday in May

† The paper on *General Indian History* should be taken along with B.A. Group (iv-a) candidates on the same day.

‡ The paper on *The History of India* should be taken along with B.A. (Honours) Branch III candidates on the same day.

Examinations.	Last date for receipt of applications, together with the receipt of payment of fees, in the Registrar's Office.	Last date for submitting certificates.	Date of commencement of Examinations.	Last date of publication of results.
English Papers (Matriculation Examination) for Entrance Test to Sangita Siromani candidates.	November 15	...	March 20	4th Monday in May
Sangita Siromani—Preliminary:				
Part I ...	November 15	March 9	March 20	4th Monday in May
Part II ...	Do.	Do.	Same day as for Intermediate Part II	Do.
Part III ...	Do.	Do.	Immediately after the Examination in Part II.	Do.
Sangita Siromani—Final:				
Part I ...	November 15	March 9	March 20	4th Monday in May
Part II ...	Do.	Do.	Immediately after the Examination in Part I.	Do.
B Mus.—				
Part I ...	December 20 or July 15	March 9 or August 25	March 20 or September 15	4th Monday in May or 4th Monday in October.
Part II ...	Do.	Do.	Immediately after Part I	Do.
Part III ...	Do.	Do.	Immediately after Part II	Do.

Examinations.	Last date for receipt of applications, together with the receipt of payment of fees, in the Registrar's Office.	Last date for submitting certificates.	Date of commencement of Examinations.	Last date of publication of results.
Diplomas—				
* Economics ...	Jaunary 20	April 10	July 10	3rd Monday in August
Politics and Public Administration.	Do.	Do.	Do.	Do.
Statistics ...	Do.	Do.	Do.	Do.
French ...	Do.	Do.	April 25	2nd Monday in June
German ...	Do.	Do.	April 26	Do.
Librarianship ...	Do.	Do.	April 20	Do.
† Geography ...	Do.	Do.	Do.	Do.
Indian Music ...	Do.	Do.	Do.	Do.
Anthropology ...	January 20	April 10	April 25	1st Monday in June
Journalism ...	November 1	January 10	January 20	February 20
Diploma in Social Service.	January 20	April 10	July 10	3rd Monday in August
Physical Education.	January 20	April 10	April 25	2nd Monday in June
Business Management—				
Part I ...	January 20	April 10	April 25	2nd Monday in June
Part II ...	Do.	Do.	Do.	Do.
Part III ...	Do.	Do.	Do.	Do.

* Last date for submission of Thesis—July 1.

† Last date for submission of Dissertation—May 15.

Examinations.	Last date for receipt of applications, together with the receipt of payment of fees, in the Registrar's Office.	Last date for submitting certificates.	Date of commencement of Examinations.	Last date of publication of results.
Diploma in Archaeology.	January 20	April 10	July 10	3rd Monday in August
Diploma in Dietetics.	January 20 or July 15	January 20 or July 15	April 1 or October 15.	May 1 or Nov. 15
Certificates—				
French ...	January 20	April 10	April 25	2nd Monday in June
German ...	Do.	Do.	April 26	Do.
Librarianship ...	June 1	June 20	June 28	4th Monday in July
Anthropology ...	January 20	April 10	April 25	1st Monday in June
Certificate course in the Sciences and Humanities.	December 15	March 9	March 20	3rd Monday in May

Provided that applications for admission to examinations received within a period of five days after the dates specified above will be accepted on payment of a fee of Rupee one per candidate ;

Provided further that if any of the dates under columns 2 to 5 *supra* happen to be holidays, the next working day shall be considered as the due date for the purpose enumerated under each of the columns ;

Provided also that it shall be competent for the Registrar to publish the results on any day succeeding the dates mentioned only when it has been found necessary to postpone publication beyond the dates prescribed, after giving notice in the newspapers ;

Provided also that—

(1) the Syndicate shall so fix the dates of the several examinations as to avoid, as far as may be practicable, the setting of duplicate sets of question papers in the same subject ; and

(2) the date of commencement of all examinations and time-tables in detail shall be published in the *Fort St. George Gazette* by the Syndicate in the preceding February or August.

CHAPTER XXXIX.

Transfer and Term or Annual Certificates

(*Regulations*)

Transfer Certificates.

1. No student who has previously studied in any recognised school or college shall be admitted to a college unless he presents a transfer certificate showing :—

(*a*) the name of the student in full,

(*b*) the date of birth as entered in the admission register,

(*c*) the dates on which he was admitted to and on which he left the institution,

(*d*) the class in which he studied at the time of leaving it,

(*e*) the subjects or portions thereof studied by him while enrolled,

(*f*) if it be the time when annual promotions take place, whether he is qualified for promotion to a higher class,

(*g*) that he has paid all fees or other moneys due to that institution in respect of the last term in which he was enrolled, and a certificate of Medical Inspection, if any, from the school in which he last studied, and

(*h*) reasons for leaving college.

[*N.B.*—Clause (*h*) must be filled in when the Transfer Certificate is sent to the Syndicate of the University under Regulation 4 of this Chapter.]

No student shall be enrolled pending the production of such certificate. Every such certificate shall be

endorsed with the admission number under which the student is enrolled and shall be filled for reference and inspection.

Certificates of Medical Inspection.

2. A student admitted to a college shall be required to undergo a medical inspection within the first term of the Pre-University course and a re-inspection during the first term of the first year of the three-year B.A. or B.Sc. or B.Sc. (Home Science) or B.Com. courses or the first term of the Pre-Professional courses. A student proceeding from one college to another shall be required to produce along with his Transfer Certificate, the Medical Certificate given in the previous college.

Such Medical Inspection shall be conducted by a doctor possessing the University qualification of L.M.&S. or M.B. & B.S. or a registrable British qualification.

In a case where a college has difficulty in arranging for Medical Inspection, a report should be made to the Syndicate by the college in question.

Issue of Transfer Certificates.

3. A student applying for a transfer certificate during a college term on any day of which he has been enrolled or applying not later than the fifth working day of the college term immediately following shall forthwith be given such certificate upon payment of all fees or other moneys due or of such portion thereof, as the Principal may see fit to demand, for the College term in which he was enrolled.

A student applying for such cerificate after the fifth working day of the college term immediately following that during which he has been last enrolled shall forthwith be given it on payment of (1) all fees or other moneys due, or of such portion thereof as the Principal may see fit to demand, in respect of the college term in which he was

last enrolled, and (2) an additional fee of Rs. 3 at the option of the Principal;

Provided that, when a student has been enrolled at favourable fee rates, he shall be liable for such rates only.

No student shall be considered to have been enrolled in any college term unless he has attended the college and received instruction for at least one day of that college term or has paid the fees or portions thereof prescribed.

In the case of a student who has been a candidate for a University Examination, the results of which have not been published before the beginning of the college term, the eleventh day after the results of that examination have been announced at the Senate House* shall be counted for him the first working day of the college term so far as the grant of a transfer certificate is concerned.

In the event of the Principal refusing or delaying to give a transfer certificate to which a student may be entitled the student shall have right of appeal to the Syndicate.

Expulsion of student from College.

4. If any student is expelled from a Constituent or an Affiliated College, intimation of the fact of expulsion, with a statement of the reasons therefor, shall be given forthwith by the Principal (*a*) to the parent or guardian of the student, and (*b*) to the Syndicate; intimation to the Syndicate shall be accompanied by the transfer certificate of the student. The Syndicate, on the application of the student or his parent or guardian may, after making such enquiry as it deems proper, deliver the certificate to the student with any necessary endorsement or withhold it temporarily or permanently.

* Or in the Building in which the Office of the Registrar, University of Madras, is located.

5. The academic year for Colleges affiliated or recognised in Arts, Science, Teaching and Law shall consist of three terms which shall ordinarily begin and end as follows :—

Academic year.

First term—June to September, closing with the Michaelmas holidays.

Second term—October to December, closing with the Christmas holidays.

Third term—January to April, closing with the Summer holidays.

6. A student shall ordinarily qualify for the annual certificate in one and the same college, but in special cases the Syndicate may allow attendance in different colleges to be combined for purposes of the annual certificate.

Combination of attendances.

7. A student in the Arts or Science courses desirous of transfer from one college to another shall apply to the Syndicate for permission to combine attendance at the two colleges, for purposes of the annual certificate. Such applications shall be submitted in every case prior to making the desired transfer and shall furnish valid reasons for the change proposed. This rule applies to a transfer during a term as well as a transfer at the end of an academic year when an additional term is proposed to be kept in a different college. An application to combine attendances shall invariably be accompanied by (i) the written consent to the proposed transfer of the Principal of the College in which the student is studying and (ii) the written promise of admission from the Principal of the College which he proposes to join, together with an assurance countersigned by the latter Principal that the student, if permitted by the Syndicate to combine

attendances, will, in the main, be able to continue in his college the course of study already commenced by the student under each part of the examination.

In the case of a student in Arts or Science who has been permitted to combine attendances in two colleges, the annual certificates will be accepted as statisfying the Regulations, provided the student has kept either—

(*a*) three quarters of the possible attendances in each college before and after his transfer respectively,

or

(*b*) three quarters of the combined total of possible attendances in the two colleges taken together.

Conditions of grant of annual certificate.

8. In colleges affiliated or recognized in Arts, Science, Teaching and Law, the grant of the annual certificates shall be in respect of three terms ordinarily consecutive comprising one year; but it shall be competent for the authorities of a college to grant such certificate in respect of three terms which are not consecutive, provided that the student has, during those terms, completed the necessary courses of study for the year.

9. The grant of the annual certificate shall be subject, in addition, to the following conditions :—

(1) In colleges affiliated or recognised in Arts, Science, Teaching and Law, the certificate shall not be granted, unless a student has kept three-fourths of the attendances prescribed by the college in the course of instruction followed by him during each year.

(2) In colleges affiliated to or recognized in Engineering, Agriculture, Veterinary Science and Commerce, the certificate shall not be granted unless a student has *kept three-fou'ths* of the attendances prescribed by the college in the course of instruction followed by him during each year and in colleges of Medicine and Technology, the certificates shall not be issued unless he has *attended four-fifths* of the lectures in each course.

(3) In colleges or institutions recognised, affiliated or approved under the Faculties of Oriental Learning and Fine Arts and in University Departments conducting the several Diploma classes, the certificate shall not be granted unless a student has kept three-fourths of the attendances prescribed by the college, institution or University Department in the course of instruction followed by him during each year:

(4) The certificate shall not be granted unless the student has completed the course of instruction to the satisfaction of the authorities of his college and his progress and conduct have been satisfactory.

Students for want of progress certificate to undergo additional Instruction.

10. In the Pre-University or the B.A. (Pass) Degree Course a student who has failed to earn the progress certificate at the end of the first year's course shall be required to rejoin the first year class for another full year.

A student who has not been selected for the March-April University Examination but who at the close of the academic year is certified by the Principal to have

made such satisfactory progress that he may be admitted to the examination, may appear for a subsequent examination without further attendance at a college, provided that he has earned the necessary attendance certificate.

A student who has failed to earn the progress certificate for the second academic year must attend college, to receive such additional instruction as the Principal may, in his discretion, prescribe so as to enable him to earn the required progress certificate.

11. The Regulations governing attendance and progress and combination of attendance shall apply *mutatis mutandis* to students in the Faculty of Law.

Forms of certificates. **12.** The certificates shall be drawn up in the prescribed forms.

CHAPTER XL.

Admission to Examinations and Exemption from Annual or Term Certificates

(*Regulations and Ordinances.*)

Regulation.
Admission to Examination only after Matriculation.

1. Only persons whose names are contained in the Register of Matriculates shall be admitted to any examination other than the Matriculation Examination.

Regulation.
Registration of application.

2. Before being admitted to an examination a candidate must have been registered therefor. A candidate shall be registered afresh on each occasion on which he wishes to present himself for an examination and a candidate shall be registered only after he has submitted an application in the prescribed form and paid the fee prescribed.

Regulation.
Conditions for admission—preliminary qualification.

3. Every candidate for an examination shall produce evidence of having previously passed the qualifying examination prescribed by the Laws, if any.

Regulation.
Production of attendance certificates.

4. He shall also, unless exempted by a special order of the Syndicate made either on the recommendation of the Academic Council or as otherwise provided under the Laws, produce in the prescribed form the certificate or certificates required by the Laws of the University.

Regulation.
Admission to Examination only on production of certificates.

5. No candidate shall be permitted to sit for an examination unless his annual (term) certificates of attendance, conduct and progress or the order of exemption granted to him have been received by the Registrar *before the commencement of the examination.*

Ordinance.
Exemption from attendance certificate— Matriculation Examination.

6. In the case of the Matriculation Examination, the Syndicate may grant exemption from the production of the prescribed certificate of attendance to—

(1) A candidate who has attained the age of twenty years on the first day of March in the year in which he appears for the examination.

(2) A *bona fide* teacher, provided (*a*) he has completed a course of study in the Third Form (or the equivalent thereto in the case of courses of study other than the S.S.L.C. course) and has qualified for promotion to the higher class and (*b*) satisfies the condition laid down in Regulation 9 (*e*) of this Chapter.

(3) A candidate who produces evidence of having qualified for promotion to the Fourth or Higher form (or the equivalent thereto in the case of courses of study other than the S.S.L.C. course) shall be considered for exemption. Such a candidate should receive approved instruction, during the whole period prior to his proposed appearance at the Matriculation Examination, which shall be not less than three years in the case of those promoted to IV Form, two years in the case of those promoted to V Form, and one year in the case of those promoted to

VI Form. Satisfactory evidence should be produced that the applicant is of good character and has received suitable instruction for the period required.

Ordinance.
Conditions of admission to O.T. Entrance Test.

7. A candidate who has completed the age of 14 years on the 15th day of January of the year of appearing for the examination may be permitted by the Syndicate to sit for the Oriental Title Entrance Test or the English Part of the Matriculation Examination for entrance to Sangita Siromani Course of the University of Madras, without the production of any certificate of attendance.

Regulation.
Exemption—general conditions.

8. In the case of other examinations, the Academic Council may recommend the grant of special exemption by the Syndicate subject to the condition that no such application shall be granted in the case of a student studying in a College or a Department of the University, without a recommendation from the Head of the College, or the Head of the University Department in which he is a student.

Regulation.
Grant of exemption by the Syndicate.

9. The Syndicate may grant exemption :—

(*a*) To a student studying in a College or in a Department of the University, who has failed to keep three-fourths of the attendances prescribed by the Institution or the University Department of which he is a student, and is unable to produce his annual certificate of attendance, conduct and progress, provided that

(i) the shortage of attendance does not exceed five days; and

(ii) the Syndicate considers that the reasons given for failure to keep the prescribed attendance are satisfactory.

If the shortage of attendance exceeds five days, the exemption shall be granted only on the recommendation of the Academic Council or its Standing Committee.

Exemption to students in a language (other than English)—when and how granted.

(b) To a student studying in a College in which the language in respect of which exemption is sought is not taught, provided that the Syndicate is satisfied—

(i) as to the reasons assigned by the student for not studying in a College where the language in question is taught, and

(ii) as to the arrangements made for instruction being received by the student in that language in the following examination:—

Name of Examination.	*Part or Group for which exemption may be granted.*
B.A. Degree ..	Part II—Second Language.

Exemption—Final M.B.& B.S. Examination—Additional course.

(c) To a candidate for the Final M.B. & B.S. Degree Examination who having failed in the examination is unable to produce an additional certificate of attendance for six months in one or more subjects of the examination in accordance with the Regulations provided that he is recommended for exemption by the Principal of a Constituent or an Affiliated Medical College, in which he is studying.

Exemption—Oriental Title Examinations.

(*d*) To a candidate from the production of either or both of the annual certificates of attendance, required for the Oriental Title Examination, provided that he is at the time of the examination at least thirty years of age.

Provided, however, that a candidate who has already qualified for an Oriental Title shall be permitted to appear for the examination for a different Title or for a different subject in the same Title; . such a candidate shall be exempted from the necessity of passing in the Entrance Test in the new language and/or conforming to the age rule.

Notwithstanding anything contained in the above Regulation, it shall be competent for the Syndicate to allow candidates who have already been granted exemption from the production of attendance certificates with a view to appearing for any of the Oriental Title Examinations under Regulation 8 (*h*) (i) of Chapter XXXIX, Volume I, Part II, Calendar, 1942-43, to sit for any division or whole of the Oriental Title Examinations:

Provided, however, that exemption once granted prior to the introduction of new restriction (like the age limit and passing of Entrance Test for Oriental Title private candidates) shall be valid only for Examinations under the Old Regulations.

Note.—As and from the academic year 1947-48 the examinations for the Titles will be confined only to such subjects as are offered by colleges.

Exemption—bona fide teachers.

(*e*) To a *bona fide* teacher under the following conditions :—

A *bona fide* Teacher employed in a College or School recognised by the Madras University,

or in Schools recognised by the Director of Public Instruction, Madras, or the Inspector of Schools, Coorg and situated within the jurisdiction of the Madras and Annamalai Universities or any alumnus of this University serving in the Indian Army Educational Corps irrespective of the place of employment, shall be entitled to apply for exemption.

Applications for exemption should be made by those teachers with the permission of their managements and managements should certify that the applicants are *bona fide* teachers in their respective Institutions.

In the case of teachers serving in the Indian Army Educational Corps, the applications for exemption should be made by the teachers concerned with the permission of army authorities and the army authorities should certify that the applicants are *bona fide* teachers in the Army Educational Corps.

Bona fide teachers applying for exemption should have been in service as whole-time teachers for not less than *three* years on the date of such application.

(*i*) Pre-University Examination

An applicant for exemption to appear for the Pre-University examination should either have passed the Matriculation examination of this University or an examination recognized as equivalent thereto or have been placed on the list of candidates declared

eligible for admission to courses of study in this University on the results of the S.S.L.C. Examination provided further that he shall not be allowed to appear for the examination until one year has elapsed between the passing of Matriculation examination or other qualifying examination and that of appearing for the Pre-University examination. He shall produce a certificate of having done the prescribed laboratory work from a Professor or a Lecturer of a college recognized by or affiliated to the University in the subjects concerned countersigned by the Principal of that college.

(*ii*) **B.A. Degree Examination (Old Regulations)**

Every teacher applying for exemption to appear for the B.A. Degree Examination under the Old Regulations shall be permitted to do so, till the examination of March-April 1964. He should have passed the Intermediate Examination of Madras University or an examination recognized as equivalent thereto; provided that he shall not be allowed to appear for the examination until two years have elapsed between the passing of the Intermediate or other qualifying examination and appearing for the B.A. Degree Examination under the Old Regulations; and provided further that should he fail to qualify for the B.A. Degree under the Old Regulations by the March-April 1964, he should appear for the Three-year Degree examination under the New Regulations in all Parts to obtain the B.A. Degree.

(*ii-a*) Three-year B.A. Degree Examination

Every teacher applying for exemption to appear for the three-year B.A. Degree examination, should have passed the Pre-University examination of the Madras University or an examination recognised as equivalent thereto; provided that he shall not be allowed to appear for the examination until three years have elapsed between the passing of the Pre-University or other qualifying examination and appearing for the B.A. Degree Examination.

A *bona fide* teacher who has passed the Intermediate examination can also apply for exemption to appear for the three-year B. A. Degree Examination under the New Regulations; provided that he shall not be allowed to appear for the examination until two years have elapsed between the passing of the Intermediate examination and appearing for the three-year B.A. Degree Examination.

) M.A. Degree Examination

Every teacher applying for exemption from the production of the prescribed attendance certificates for the M.A. Degree Examination shall have passed the B.A. Degree Examination of the Madras University or an examination recognised as equivalent thereto; provided that he shall not be permitted to appear for the examination until two years have elapsed between the passing of the B.A. Degree Examination

or other qualifying examination and appearing for the M.A. Degree Examination :

Provided, further, that a teacher, who is a B.Sc. or B.O.L. Degree holder of this University and has later qualified for the B.A. Degree may be permitted to take the M. A. Degree Examination in any of the Humanities (Philosophy, History, Economics, Politics or English Language and Literature) two years after passing the B.A. Degree Examination.

Provided further that a teacher who holds the B.O.L. Degree of this University shall be permitted to take the M.A. Degree Examination in one or other of the language offered by him for the B.O.L. Degree Examination, two years after passing the B.O.L. Degree Examination. This proviso shall be in force for a period of five years i.e. upto and including the examination of March 1962.

(*iv*) **Oriental Title Examination**

Every teacher applying for exemption from the production of the prescribed attendance certificate for any Oriental Title Examination shall have passed the Entrance Test before he is permitted to sit for the Preliminary Examination. He may be permitted to sit for the Final Examination one year after passing the Preliminary Examination.

Exemption *bona fide* **Librarians**

(*f*) The conditions for exemption prescribed in the case of *bona fide* teachers shall apply to full-time Librarians in schools approved by the Director of Public Instruction, Madras, and situated within the Madras University area, and in colleges recognized by or affiliated to the University, and who have put in a service of not less than three years as Librarians, provided that in the case of candidates for the Pre-University and B.A. Degree Examinations they shall have passed the examination for the Certificate or Diploma in Librarianship of the Madras University, and in the case of candidates for the M.A. Degree Examination, they shall have passed the Examination for the Diploma in Librarianship of the Madras University.

Act and Regulation. **Other exemption—general conditions.**

10. In cases other than those specially provided for in the above Laws or in other Statutes, Regulations or Ordinances, the Syndicate may, by special order, grant exemption on the recommendation of the Academic Council. Any such exemption may be made subject to such conditions as the Syndicate may think fit.

Ordinance. **Exemption applications—when to be made.**

11. Applications for exemption from students not studying in a College shall in every case be forwarded so as to reach the Registrar before the first October and the first March preceding the March-April and September Examinations, provided, however, that applications for exemption from the production of attendance certificates for the

examinations under Laws* 6, 7, 9 (*d*) and 9 (*e*) (iv) of this Chapter shall be forwarded so as to be received before the first August preceding the examinations.

Ordinance.

Exemption order permanent.

12. Orders of exemption granted under the preceding Laws shall be permanent.

13. Notwithstanding anything that may be contained to the contrary in the Laws of the University, it shall be competent for the Syndicate, with regard to students whose courses of studies are shown to the satisfaction of the Syndicate to have been interrupted owing to disturbed conditions in certain Provinces in the year 1947, to dispense with a strict compliance with the Laws, as may be decided in each and every case, in regard to admission to courses of studies or attendance at courses of this University, or such other conditions as may be laid down in the Laws.

14. Notwithstanding anything contained in the Laws of the University, it shall be competent for the Syndicate in the case of foreign nationals, admitted to courses of study in this University for the Pre-University or B.A. Degree or B.Sc. Degree (Three-year) or B.Sc. Degree in Home Science, whose mother tongue is not any of the Indian languages or who have not taken a language recognised by this University of the required standard for the preceding qualifying examination to exempt them from the course and examination in Part II of the Pre-University or B.A. Degree or B.Sc. Degree or B.Sc. Degree in Home Science, as the case may be.

*The same date will apply in the case of scrutiny of applications for permission to appear for the Matriculation Examination under Ordinance 1 (*d*) of Chapter XLI *infra.*

CHAPTER XLI.

MATRICULATION EXAMINATION

(Ordinances.)

1. The Matriculation Examination shall be open to the following :—

(*a*) Candidates from schools recognized by the University, as teaching to the Matriculation standard, but not recognized by the Director of Public Instruction, Madras, for preparing for the Secondary School-Leaving Certificate Examination.

Recognition of School.

(*b*) Candidates from schools in the French Territories in South India, certified by the Director of Public Instruction, French India, to be organised and conducted so as to ensure efficient training to the standard of the Matriculation Examination.

(*c*) Candidates who hold completed School-Leaving Certificates issued under the authority of the Government of Madras or such other authority as may be accepted by the Syndicate, in accordance with the provisions contained in Ordinance 2 *infra* and subject to the restriction therein.

Note:—For the scrutiny fee to be paid by candidates for the examination under this Ordinance *Vide* Ordinance 5 II (1) *(b)* of Chapter XXXVII†.

Condition of admission.

2. No candidate shall be admitted to the Matriculation Examination unless he has completed the age of fourteen years on the fifteenth day of January of the year of appearing for the examination and has undergone a course of study in one of the High

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† Rs. 10

Schools specified in Ordinance 1 of this Chapter for a period of not less than three academic years subsequent to his admission to the Fourth Form ;

Provided that it shall be permissible to admit a student to the Fifth or Sixth Form at the beginning of a school year on production of a valid transfer certificate from a school recognized by the Director of Public Instruction, Madras or equivalent authority; and

Provided, however, that no candidate who holds a completed School-Leaving Certificate shall be permitted to appear for the Matriculation Examination until the expiry of one academic year after having completed the course of study prescribed for the School-Leaving Certificate Examination.

3. The course of study shall consist of five parts.

Course of Study—English.

(1) *English Language.*—Text-books shall be prescribed of which a detailed knowledge may be required.

(2) *A Second Language.*—One of the following languages at the option of the candidate:—

(a) Classical: Sanskrit, Greek., Latin., Arabic., Persian., Hebrew., Syriac.

(b) Modern:
- (1) Foreign: French, German.
- (2) Indian: Tamil, Telugu., Kannada., Malayalam, Urdu., Marathi., Oria., Hindi, Bengali., Burmese., Sinhalese.

Second Language.

In each language, there shall be preseribed text-books. In the Indian languages, the texts prescribed shall be mainly in modern prose.

Mathematics: (3) *Mathematics*—The subject included shall be (*a*) Arithmetic. (*b*) Algebra and (*c*) Geometry.

(*a*) *Arithmetic.*—The principles and processes of Arithmetic applied to whole numbers and vulgar and decimal fractions. The metric system. Approximations to a specified degree. Contracted methods of multiplication and division of decimals. Practice ratio and proportion. Square and cubic measure. Direct applications of the term *per cent*, including interest, present-worth and discount, stocks and shares, profit and loss, exchange, square root.

(*b*) *Algebra.*—Symbolical expression of general results in Arithmetic. Algebraical laws and principles and their applications. Factorization of simple functions. Equations, conditional and identical. Equations of the first degree in one, two and three variables and the principles involved in their solution. Solution of problems by means of such equations. Equations of the second degree in one variable and the principles involved in their solution. Theory of positive integral indices. Square root. Graphs of simple algebraic functions.

(*c*) *Geometry.—Experimental*—Construction of lines, angles, circles, perpendicular, parallels, tangents, chords, triangles and regular polygons from given data. Division of lines in given ratios. Bisection of angles. Graphical extraction of arithmetical square roots.

Theoretical.—Angles at a point. Parallel straight lines. Triangles and recti-linear figures. Areas, simple loci. Elementary propositions on circle. Proofs of the constructions in Experimental Geometry. Easy deductions.

A detailed syllabus in Geometry shall be prescribed.

Elementary Science.

(4) *Elementary Science.*—The subjects included shall be Elementary Physics and Elementary Chemistry as defined in a syllabus.

History and Geography.

(5) *History and Geography.*—

(1) Movements in History—a topic to be prescribed in each year, as defined in a syllabus.

(2) History of India—a special period to be prescribed each year. Books will be recommended from year to year when the special periods are prescribed.

Geography—

(1) Geography of India, Great Britain and Ireland, as defined in a syllabus.

(2) Geography of Europe, Asia, Africa, America and Australia, as defined in a syllabus.

Scheme of Examination.

4. The Examination shall comprise five divisions:

(1) *English.*—There shall be two papers, each of three hours' duration and carrying 100 marks each. The first paper shall be mainly upon the prescribed texts and shall be designed to test the candidate's proficiency in composition and his

knowledge of grammar and idiom. The second paper shall contain questions on (*a*) the non-detailed texts prescribed, (*b*) paraphrase not based on the prescribed texts, and (*c*) the conversion, expansion, and condensation of sentences. Paraphrase shall be treated as a test of the candidate's power to understand and give the general meaning of passages of prose or poetry.

(2) *Second Language.*—In each language, there shall be one paper of three hours' duration and carrying a maximum of 100 marks. The paper shall consist of two parts and not less than half the total marks shall be assigned to the second part. In a classical or foreign language the first part shall contain passages for translation from the text-books and questions on grammar and idiom, and the second shall contain unseen passages for translation from the selected language into English and from English into the selected language. In an Indian language, the first part shall contain questions on the detailed text-books and on grammar and idiom, and the second part shall consist of questions on the non-detailed text-books and translation from English into the selected language.

(3) *Mathematics.*—There shall be two papers—

(1) Arithmetic and Algebra ... 3 Hours—100 Marks.

(2) Geometry ... 3 Hours—100 Marks.

(4) *Elementary Science*:—There shall be one paper of three hours' duration carrying 100 marks.

(5) *History and Geography*—There shall be two papers—

(1) History ... 3 Hours—100 Marks.

(2) Geography... 3 Hours—100 Marks.

Marks qualifying for a pass.

5. A candidate shall be declared to have passed the examination, if he obtains not less than thirty-five per cent of the marks in each of the divisions, provided that a candidate who fails to obtain the required minimum in one division only but who passes in English and gains fifty per cent of the total marks in the whole examination shall be declared to have passed. All the other candidates shall be deemed to have failed in the examination.

Classification of successful candidates.

Successful candidates who obtain not less than sixty per cent of the total marks shall be placed in the first class. Successful candidates who obtain less than sixty per cent but not less than forty-five per cent, of the total marks shall be placed in the second class. Other successful candidates shall be placed in the third class.

MATRICULATION EXAMINATION

Syllabuses and Text-Books

MATHEMATICS

(*a*) *Arithmetic.*—The principles and processes of Arithmetic applied to whole numbers and vulgar and decimal fractions. The metric system. Approximations to a specified degree. Contracted methods of multiplication and division of decimals. Practice, ratio and proportion. Square and cubic measure. Direct applications of the term *per cent* including interest, present-worth and discount, stocks and shares, profit and loss, exchange, square root.

(*b*) *Algebra.*—Symbolical expression of general results in Arithmetic. Algebraical laws and principles and their applications. Factorization of simple functions. Equations, conditional and identical. Equations of the first degree in one, two and three variable and the principles involved in their solution. Solution of problems by means of such equations. Equations of the second degree in one variable and the principles involved in their solution. Theory of positive integral indices. Square root. Graphs of simple algebraic functions.

(*c*) *Geometry-Experimental.*—Construction of lines, angles, circles, perpendiculars, parallels, tangents, chords, triangles and regular polygons from given data. Division of lines in given ratios. Bisection of angles. Graphical extraction of arithmetical square roots.

Theoretical.—Angles at a point. Parallel straight lines. Triangles and rectilinear figures. Areas, simple loci. Elementary propositions on circles. Proofs of the constructions in Experimental Geometry. Easy deductions.

Detailed Syllabus in Theoretical Geometry.

Angles at a point.—If a straight line stands on another straight line, the sum of the two angles so formed is equal to two right angles and the converse.

If two straight lines intersect, the vertically opposite angles are equal.

Parallel straight lines.—When a straight line cuts two other straight lines, if,

(*i*) a pair of alternate angles are equal, or

(*ii*) a pair of corresponding angles are equal, or

(*iii*) a pair of interior angles on the same side of the cutting line are together equal to two right angles, then the two straight lines are parallel; and the converse.

Straight lines which are parallel to the same straight line are parallel to one another.

Triangles and rectilinear figures.—The sum of the angles of a triangle is equal to two right angles.

If the sides of a convex polygon are produced in order, the sum of the angles so formed is equal to four right angles.

If two triangles have two sides of the one equal to two sides of the other, each to each, and also the angles contained by those sides equal, the triangles are congruent.

If two triangles have two angles of the one equal to two angles of the other, each to each, and also one side of the one equal to the corresponding side of the other, the triangles are congruent.

If two sides of a triangle are equal, the angles opposite to these sides are equal; and the converse.

If two triangles have three sides of the one equal to the three sides of the other, each to each, the triangles are congruent.

If two right-angled triangles have their hypotenuses equal, and one side of the one equal to one side of the other, the triangles are congruent.

If two sides of a triangles are unequal, the greater side has the greater angles opposite to it; and the converse.

Of all the straight lines that can be drawn to a given straight line from a given point outside it, the perpendicular is the shortest.

The opposite sides and angles of a parallelogram are equal; each diagonal bisects the parallelogram, and the diagonals bisect one another.

If there are three or more parallel straight lines, and the intercepts made by them on any straight line that cuts them are equal, then the intercepts made by them on any other straight line that cuts them are also equal.

Areas.—Parallelograms of the same altitude on the same or equal bases are equal in area.

Triangles of the same altitude on the same or equal bases are equal in area.

Equal triangles on the same or equal bases are of the same altitude.

Illustrations and explanations of the geometrical theorems corresponding to the following algebraical identities:—

$$k(a+b+c+\ldots)=ka+kb+kc+\ldots$$

$$(a+b)^2=a^2+2ab+b^2,$$

$$(a-b)^2=a^2-2ab+b^2,$$

$$a^2-b^2=(a+b)(a-b),$$

$$(a+b)^2-(a-b)^2=4ab,$$

$$(a+b)^2+(a-b)^2=2a^2+2b^2.$$

The square on a side of a triangle is greater than, equal to or less than the sum of the squares on the the other two sides, according as the angle contained by those sides is obtuse, right or acute. The difference in the cases of inequality is twice the rectangle contained by one of the two sides and the projection on it of the other.

Loci.—The locus of a point which is equidistant from two fixed points is the perpendicular bisector of the straight line joining the two fixed points.

The locus of a point which is equidistant from two intersecting straight lines consists of the pair of straight lines which bisect the angles between the two given lines.

The locus of the vertices of all triangles which have the same base and the sum of the squares of their sides equal to a given square is a circle having its centre at the middle point of the base.

The locus of the vertices of all the triangles which have the same base and the difference of the squares of their sides equal to a given square is a straight line perpendicular to the base.

The locus of the vertices of all the triangles which have the same base and their vertical angles equal to a given angle is the arc of a segment of a circle.

The Circle.—A straight line drawn from the centre of a circle to bisect a chord which is not a diameter, is at right angles to the chord; conversely, the perpendicular to a chord from the centre bisects the chord.

There is one circle and one only, which passes through three given points not in a straight line.

In equal circles (or, in the same circles) (i) if two arcs subtend equal angles at the centres, they are equal; (ii) conversely, if two arcs are equal, they subtend equal angles at the centres.

In equal circles (or, in the same circle) (i) if two chords are equal, they cut off equal arcs; (ii) conversely, if two arcs are equal, the chords of the arcs are equal.

Equal chords of a circle are equidistant from the centre; and the converse.

The tangent at any point of a circle and the radius through the point are perpendicular to one another.

If two circles touch, the point of contact lies on the straight line through the centres.

The angle which an arc of a circle subtends at the centre is double that which it subtends at any point on the remaining part of the circumference.

Angles in the same segment of a circle are equal; and if the line joining two points subtends equal angles at two other points on the same side of it, the four points lie on a circle.

The angle in a semi-circle, is a right angle; the angle in a segment greater than a semi-circle is less than a right angle; and the angle in a segment less than a semi-circle is greater than a right angle.

The opposite angles of any quadrilateral inscribed in a circle are supplementary; and the converse.

If a straight line touches a circle, and from the point of contact a chord be drawn, the angles which the chord marks with the tangent are equal to the angles in the alternate segments.

If two chords of a circle intersect either inside or outside the circle, the rectangle contained by the parts of the one is equal to the rectangle contained by the parts of the other; and the converse.

ELEMENTARY SCIENCE: (1) PHYSICS, (2) CHEMISTRY

The examination shall test whether the subjects included in the following Syllabus have been taught by the aid of experimental demonstrations—wherever this is possible. The application of physical and chemical facts and principles to experience in ordinary life should receive particular attention.

It is desirable that, as far as the accommodation and equipment of the school will allow, pupils receive practical instruction in the physical and chemical processes included in the syllabus.

1. *Physics.*—Measurement of length. Meaning of a unit and the measurement of a Physical quantity. British and metric units; their multiples and sub-multiples. Derived units of area and volume. Measurement of area and volume.

Measurement of time: Unit of time, Rotation of the earth. Measurement by simple pendulum.

Speed: its measurement involving length and time; calculation of speed in given cases; Elementary ideas regarding acceleration. Illustration of First Law of Motion; definition of force.

Matter: Definition. Measurement of mass. British and metric units. Determination of mass by the spring balance, and by the ordinary balance. Density and specific gravity.

Gravitation: All matter attracted by the earth; illustration of Second Law of Motion; attraction is mutual, illustration of Third Law of Motion. Universality of gravitation. Weight of a body. Distinction between mass and weight.

Properties of matter: Extension, inertia, gravitation, divisibility, porosity, hardness elasticity, transparency and opacity, ductility, malleability, brittleness, plasticity, viscosity. The three states of matter. Changes of states produced by heating and cooling. Permanent and temporary effects of heating different substances; effects on organic substances; tempering of metals.

Simple machines : The lever, its general principle and application to the common balance. The wheel and axle. The pulley. The inclined plane. Application of the screw.

Centre of gravity: Definition. Experimental determination of centre of gravity in simple cases. Condition of equilibrium of a body resting in a given position; stable, unstable and neutral equilibria.

The common balance; how mass is measured by weighing.

Solids: permanence of shape and volume which are only altered by application of forces.

Liquids: no permanent shape. Surface of liquid at rest horizontal. Definition of pressure and its evaluation, it acts in all direction equally, and is greater at greater depths. Transmission of pressure. The Brahmah Press. The principle of Archimedes; its experimental proof and applications.

Gases: How distinguished from liquids. Gases have weight. Balloons. Pressure of the atmosphere: the mercury barometer; variation of atmospheric pressure with height proved by mercury barometer; the water barometer. Evaluation of pressure of atmosphere by means of barometer. Applications. Air-pump, Water-pump. Pressure of gas. Boyle's Law.

Temperature; Liquids expand by heat; the special case of water. Thermometer used for measuring temperature by observing change of volume of liquid. The mercury thermometer; method of graduating; determination of fixed points; fundamental interval; the Centigrade and Fahrenheit scales. Thermal expansion of solids. Liquids and gases.

Distinction between heat and temperature. Heat as a quantity and how it may be measured; the thermal unit. Specific heat. Change of physical state due to heat. Fusion and the latent heat of fusion; evaporation and ebullition and the latent heat of vaporization. Water vapour present in the atmosphere and determination of its amount. Cooling produced by solution and evaporation; freezing mixtures. The conduction and convection of heat; convection currents in the atmosphere and ocean; the trade winds; land and sea breezes; the gulf stream. The circulation of water vapour in the atmosphere: clouds, rain.

Light: Rectilinear transmission. Rays and pencils of light; shadows produced by different sources and images of sources produced by pin-holes. The laws of reflection of rays of light; reflection of pencils by plane mirrors and images formed by plane mirrors. Direct reflection of pencils from concave spherical mirrors; experimental proof of law of distances. The laws of refraction of rays of light; refraction of rays through a plane and a prism. Refraction through a convex lens; experimental proof of law of distances; the principal focus of a lens. Image formed by a convex lens; the simple microscope; the photographic camera; the telescope. Analysis of white light by a prism, the method of producing, and order of colours in the spectrum. The spectra of sun-light, and of candle light. Recombination of the colours of the spectrum into white light.

Electrification by friction; positive and negative electrification. Laws of attraction and repulsion. Conductors and non-conductors. Simple voltalic cell; Grove's cell. Electric current. Magnetic effects of currents in straight and coiled wires. Simple galvanometer. Heating effects of currents. Simple facts of electrolysis.

Magnatic substances; Laws of magnetic attraction and repulsion, Magnetic induction. Methods of magnetization.

Graphic representation on squared paper of the relation between two of the physical quantities referred to in the syllabus.

2. *Chemistry.*—Examples of mixtures and solution: (i) sand and sugar, (2) sulphur and iron fillings, (3) sand and salammoniac, (4) copper sulphate and water. Explanation of the processes of separating the ingredients of these mixtures; filtration, decantation, mechanical or magnetic separation, evaporation, distillation, sublimation.

Chemical compounds. Characteristic differences between compounds and mixtures; illustrations. Chemical combination illustrated by (1) candle burning in air, (2) sulphur burning in air, (3) magnesium wire burning in air, (4) quicklime combining with water.

Chemical decomposition illustrated by (1) heating mercuric oxide, (2) action of sodium on water, (3) heating potassium chloride (4) heating lead nitrate.

Iron in contact with air and water is converted into rust. Rusting is oxidation. Copper, lead, mercury, magnesium, sulphur and phosphorus also oxidize, but their oxidation takes place at different temperatures. Rapid oxidation. Combustion of candle: the products of combustion are heavier than the candle itself. One of these products is a gas which turns lime water milky and it is the same product which is obtained when charcoal burns in air. Water is another product of the combustion. Similar observations may be made and similar conclusions deduced when oil burns in air. Structure of a candle flame.

The rust or oxide is always heavier than the substances from which it is formed. When a substance (*e.g.*, iron or phosphorus) oxidizes in a confined volume of air, about one-fifth of the air ultimately disappears; remaining air is inactive (*e.g.* candle will not burn in it). Composition of air has two components; active (oxygen) and inactive (nitrogen).

Oxygen: its discovery; its mode of preparation and properties Oxides: products formed when a candle, charcoal, sulphur, phosphorus, sodium or iron burns in oxygen. Burning in oxygen and air compared. Illustration of acid and alkaline properties.

Hydrogen produced by the action of sodium on water. Products of the decomposition. Same gas is produced when dilute sulphuric or hydrochloric acid acts on zinc; or on iron. Properties of hydrogen; its density and its combustion with air or oxygen. Water the sole produce of their combustions.

Elements and compound: Two ways of determining the composition of compounds: (i) by synthesis, (ii) by analysis; illustrated by the case of water. Synthesis of water (i) by burning hydrogen in air

or oxygen, (ii) by passing hydrogen overheated copper oxide. Analysis or decomposition (i) by action of sodium on water, (ii) by passing steam over red-hot iron filings, and (iii) by electric current. Composition of water by weight and by volume. Constancy of composition of chemical compounds illustrated by the case of water. Solvent action of water: crystallization, forms of crystals, water of crystallization. Solubility of gases in water; carbonic acid gas, air and oxygen. Soda-water, Spring, river, well and sea-water. Suspended and dissolved impurities. Purification by distillation. Extraction of salt from sea water by evaporation; salt pans.

Carbon : the different forms in which it occurs, their properties and uses. Carbon burnt in air or oxygen produces carbon-dioxide. This gas is always formed when candle, oil, etc., burnt; its preparation and properties. Action in lime water. Exhaled by living animals; action of plants on carbon-dioxide. Solution of carbon-dioxide in water and properties of the solution. Hard and soft water; permenent and temporary hardness. Methods of softening hard water.

Nitrogen, the inactive constituent of air ; preparation and properties. Two of its important compounds, *viz.*, nitric acid and ammonia.

(*a*) Nitric acid: its preparation from nitre and sulphuric acid. Its properties ; power of dissolving copper and mercury and many other metals. Relations between acids, bases and salts illustrated by (1) nitric acid and caustic soda (2) magnesium oxide and sulphuric acid, (3) lime and hydrochloric acid.

(*b*) Ammonia : its preparation and properties. Solubility in water; power of neutralizing acids and forming salts, such as ammonium chloride and nitrate; behaviour of these salts on heating.

Hydrochloric acid and chlorine. Treatment of common salts with Sulphuric acid and production of hydrochloric acid gas. Properties of this gas ; solubility in water. Production of chlorine from hydrochloric acid and manganese dioxide. Its properties; its power of combining with hydrogen and with metals, such as, antimony to form chlorides. Bleaching action of chlorine.

Sulphur : the different forms ; their properties. The changes induced by heat when burnt in air or oxygen, produces sulphur dioxide. Sulphuric acid gas—its properties and uses.

Phosphorus : the different forms, their properties and uses.

Silicon : occurrence in nature, chief compound, silica. Occurrence of silica in nature, free and combined as silicates. Chief form of silica, quartz, sandstone, flint.

Metals and non-metals, their general properties.

Sodium and potassium : their occurrence and properties. Distinguishing properties of the alkali metals ; their more important compounds ; common salt, Glauber's salt, washing soda, sodium bicarbonate, caustic soda, potassium carbonate, potassium chlorate, caustic potash, saltpetre potassium permanganate. Gun-powder.

Calcium : chief compounds, calcium carbonate. Its occurrence in various forms. Limestone burnt into lime in limekilns. Slaked lime. The use of lime in making mortar and plaster. Calcium sulphate ; gypsum and Plaster of Paris.

The occurrence, general method of preparation, properties and uses of the following metals:—

Zinc, iron, copper, mercury, lead and silver. Their chief oxides and their salts which have been used or produced in experiment and illustrations included in the above syllabus.

MOVEMENTS IN HISTORY AND HISTORY OF INDIA

One of the topics in "Movements in History" and one period in "History of India" will be prescribed each year.

MOVEMENTS IN HISTORY

Topics.

(1) The Growth of British Empire and Commonwealth.

(2) The Rise and Growth of the United States of America.

(3) The Labour Movements in Modern Times.

(4) International Co-operation.

HISTORY OF INDIA

Special Period.

(1) Early Indian History from the rise of Buddhism to 1206 A.D.

(2) The Moghul Empire, 1526—1707.

(3) The British in India, 1600—1805.

(4) The Modern Period, 1805—1935.

NOTE.—Books will be recommended from year to year when the special periods are prescribed.

GEOGRAPHY

I.—Southern Continents.

Australia.

1. Relief and Rivers of Australia.

2. Climate of Australia. The seasonal distribution of temperature and rainfall.

3. Vegetation and animals ; relation between rainfall and natural vegetation regions of Australia ; peculiarity of its animal life.

4. Life and work of the people with special reference to (*a*) East Coast Region, (*b*) Murray-Darling Basin, (*c*) Mediterranean regions of West Australia and Victoria.

5. Favourable position for trading with lands around the Pacific and Indian Oceans.

Africa.

6. Structure—effect upon the coastline, rivers and lakes of Africa relief and drainage.

7. Climate and Vegetation of Africa ; apparent seasonal migration of the sun and the duplication of climatic and vegetation belts North and South of the Equator.

8. Chief Natural Regions of Africa.

9. Peoples of Africa.

10. Trade routes of the Indian Ocean.

South America.

11. Structure and relief ; rivers.

12. Climate and Vegetation of South America ; the effect of a mountain barrier, of a cold current and of altitude upon rainfall and temperature ; Andean Zones.

13. Peoples and States of South America ; the importance of minerals in the past and present development of the continent.

14. Temperate countries of South America—Argentina, Uruguay and Chile.

15. Tropical countries of South America—Brazil—the world's chief storehouse of tropical products.

16. Revision of the three southern continents.

II.—North America.

1. Structure and relief ; the work of rivers as illustrated on large scale by the Colorado and the Mississippi and as seen by actual observation of local streams.

2. Climate and vegetation ; factors that modify climate as evidenced in North America ; natural regions of North America.

3. Population and political divisions ; Immigration.

4. *United States*—
   (*a*) North-eastern industrial and commercial region.
   (*b*) South-eastern plantation region.
   (*c*) Central farming region.
   (*d*) The basins and mining regions of the Rockies.
   (*e*) Pacific shorelands—fruit, grain, timber and minerals.

5. *Dominion of Canada and Newfoundland*—
   (*a*) Eastern Canada—agriculture, dairying, timber, fisheries, mining and manufacture.
   (*b*) Prairie Provinces.
   (*c*) British Columbia.

6. Mexico, Central America and West Indies.

7. Transport and communication of North America and important links in round-the-world routes.

III.—Eurasia and India.

1. Surface, relief and rivers of Eurasia.

2. Climate of Eurasia : the major climatic regions, comparison of temperature conditions on east and west margins ; effect of latitude and distance from the sea on range of temperature, causes of monsoons and their effect on climate of South-east Eurasia.

3 British Isles : relief ; influence of the sea and the climate upon the life and activities of the people; fisheries and farming ; the chief industrial regions and their outlets.

4. Western Mainland of Europe : France—agriculture and industry; position of Paris and Marseilles, Belgium—plain of Flanders and the Sambre-Meuse Valley. Holland—a delta land reclaimed from the sea ; its colonies and sea trade. Denmark—co-operative dairy farming. Germany—plain and plateau, forestry and development of special industries ; industries of the Ruhr and Saxon coalfields.

5. Baltic Region—the new border state. Scandinavian peninsula —forestry and woodwork of Sweden.

6. Central Highlands of Europe : Czechoslovakia—its minerals and industries ; agriculture of the Mid-Danubian plain. Alpine region—development of hydro-electric power and effect on industrial development.

7. Mediterranean region—influence of climate on palnt adaptation and fruit culture. Spain—its mineral wealth but lack of coal. Italy—alluvial plain of Lambady and its industrial development—peninsular Italy.

8. South-western lands of Asia—regions of plateau and deserts with one important alluvial plain : its historical importance as a highway.

9. Central and Northern Eurasia—rich meat and pasture lands of Romanian and Russian plains—desert conditions of the Aral Sea Basin, tundra, taiga and steppi of Siberian plain, contrast development of this region with similar region in North America.

10. China—her dependencies. Effect of climate and relief upon occupations and industries.

11. Japan—A mountainous country, yet productive; agricultural, mineral and industrial development—importance of Korea.

12. South-East Asia and the East Indies.

13. Position, relief soils and minerals of India and Burma.

14. Climate of India—her chief climatic regions, means of irrigation.

15. Vegetation and animal life of India.

16. Peoples of the Indian Empire.

17. Survey of the Provinces and States—

(*a*) Mountain States.

(*b*) Great Plain.

(*c*) Plateau states and provinces

(*d*) Madras.

(*e*) Bombay.

18. Occupations and Industries of India

19. Trade, transport and seaports.

20. Ceylon.

IV.—The World.

1. Studies in climate—size and shape of the earth—movements of the earth, day and night, the seasons annual and sessional distribution of temperature, pressure, winds and rainfall, ocean currents natural vegetation.

2. Regions of the World—
(1) Tundra and Ice-cap.
(2) The Cold Forests.
(3) Broad-leaved Forests.
(4) Temperate Grasslands.
(5) Mediterranean Lands.
(6) Desert Lands.
(7) Equatorial Forests and Tropical Grasslands.
(8) Monsoon Lands.
(9) Islands of the Pacific.
(10) High Mountain and Plateau.
(11) Industrial Regions of Europe.
(12) Industrial Regions of North America.
(13) Regions of the Empire.

Books recommended.

Text-Books—

(1) The New Regional Geographies—Book IV, the World, Leonard Brooks ; London University Press.

(2) Any one of the following :—

(*a*) India, World and Empire, Herbert Pickles ; Oxford University Press.

(*b*) Our World, Morrison ; Macmillan.

(*c*) இந்திய ராஜ்யம் சிம்மளம்; Morrison and Subrahmanyam ; Macmillan.

(*d*) A Secondary School Geography by Dudley Stamp (Longmans Green & Co.)

(3) The following Atlases are recommended :—

Longmans Senior Atlas or the Taj Mahal Atlas (Longmans Green & Co.)

Reference Books.—

(1) Physiography, Herbertson ; Oxford University Press.

(2) Every one's Book of the Weather, Franco Williams ; Sheldon Press.

(3) Outdoor Geography, Hatch ; Blackie.

(4) Surface of the Earth, Pickles ; Cambridge University Press.

(5) Human Geography for Secondary Schools, Fairgrieve and Young ; G. Phillip & Son.

(6) A Graded Course of Geography, E. S. Price ; G. Phillip & Son.

(7) The Rambler Travel Books; Blackie.

(8) The World, Howarth & Bridewell ; Oxford University Press.

Text-Books for the Matriculation Examination, 1959.

ENGLISH

DETAILED.

Poetry.—The following poems from "Poetical selections for College classes" (Macmillan) :—

Tennyson—Ulysses.

M. Arnold—The Forsaken Merman.

Wordsworth—The Solitary Reaper.

Wordsworth—To the Cuckoo.

Wordsworth—The World is too much with us

Byron—The Ocean.

Goldsmith—The Deserted Village.

Prose.—Gulliver's Travels (in Lilliput and Brobdingnag) (Blackie's Easy English Classics).

NON-DETAILED.

1. Stories from Shakespeare—Wyatt (O.U.P.)
2. My India—Jim Corbett (O.U.P.)

SANSKRIT

The same as the selections for the Secondary School-Leaving Certificate Examination of 1959—Published by the Madras University.

MARATHI

DETAILED.

Prose.—Marathi Gadya—Published by Vidhaiba Sahitya Sangha, Nagpur.

Poetry.—Sahitya Swarna—Edited by Professor R. K. Lagu (pages 1-13 and 68-120).

NON-DETAILED.

Gad Ala Pan Singh Gela by H. N. Apte.

Book recommended for Grammar—Marathi Vyakaranchi Mul Tatva by G. H. Kelkar.

NOTE.—Books can be had at Venus Book Stall, Poona-2, or Modern Book Depot, Poona-2, or Bapat & Co., Booksellers, Bombay-2.

HINDI

DETAILED.

Prose and Poetry.—The same as for Secondary School-Leaving Certificate Examination of 1959—First Language (Parts I and II)

NON-DETAILED.

1. Bharat Ke Mahapurush by Sri Sant Ram (Sadhu) Asram, Hoshiarpur, Punjab, excluding lessons 2, 6, 7, 8 and 9.

2. Nav Pallav (Dakshana Bharat Hindi Prachar Sabha, Madras), excluding lessons 3, 5, 6 and 7.

FRENCH

A new book of French Verse by N. Cooper (O.U.P.), Pappiola (O.U.P.).

LATIN

Cornelius Nepos—Lives of Lysander, Alcibiades and Thrasybulus, Phaedurs—Fables, Book I, Macmillan's Elementary Classics.

HEBREW

Prose.—Genesis Chapters 6-11 (both included).

Poetry.—Psalms—1-12 (both included).

Grammar.—Students' Hebrew Grammar by Rev. Michael Adler (David Nutt, London).

SYRIAC

Text-Book.—Gospel of St. Mathew—Chapters I to V.

Grammar—

1. Syriac Grammar by Rev. Fr. Gabriel, St. Joseph's Press, Mannanam, Kerala State.

2. Second Book of Aramac by Mar Ivanios, St. Joseph's Press, Tiruvalla, Kerala State.

ARABIC

DETAILED.

The same as for Secondary School-Leaving Certificate Examination of 1959.

NON-DETAILED.

The same as for Secondary School-Leaving Certificate Examination of 1959.

PERSIAN

DETAILED AND NON-DETAILED.

The same as for Secondary School-Leaving Certificate Examination of 1959.

URDU

DETAILED AND NON-DETAILED.

The same as for Secondary School-Leaving Certificate Examination of 1959.

TAMIL

DETAILED.

The same as the selections for the Secondary School-Leaving Certificate Examination of 1959 (Parts I and II), Published by the University of Madras.

NON-DETAILED.

Indiyapperumakkal by N. Nanjappa (Published by E. M. Gopalakrishna Kone).

Arachelvi by N. Baluswamy, Lecturer in Tamil, Thiagarajar College, Madurai.

TELUGU

DETAILED.

The same as the selections for the Secondary School-Leaving Certificate Examination of 1959 (Parts I and II), published by the Andhra University.

NON-DETAILED

Pachaiyappa by Kanchanapalli Kanakamba, published by Kavitilaka Granthamala, Vijayawada-2 (1952)

KANNADA

DETAILED.

The same as the selections for the Secondary School-Leaving Certificate Examination of 1959 (Parts I and II), published by the Madras University.

NON-DETAILED.

1. Chitra Vimarshe Mattu Itara Kathegalu, by C. K. Venkataramayya (Satya Shodhana Book Depot, Fort, Bangalore.)

2. Kodagina Kathegalu by G. T. Narayana Rao (Vasantha Malike, Mangalore).

MALAYALAM

DETAILED.

The same as the selections for the Secondary School-Leaving Certificate Examination of 1959 (Parts I and II), published by the Madras University.

NON-DETAILED.

1. Saruda, Part II by T. S. Anantha Subramaniyam, published by Janatha Book House, 66, Bells Road, Madras.

2. Madame Curie (abridged editon) by K. A. Paul, published by Sahityanilayam, Kaloor, Ernakulam.

Reference for Papers I and II: Bhashasahyam by Habel G. Varghese published by Orient Longman's, Madras.

HISTORY OF INDIA AND MOVEMENTS IN HISTORY

Modern Period (1805-1935)

Text-Books recommended :

An Advanced History of India, Part II (1805-1935) by C. S. Sreenivasachari (P. Varadachari & Co., No. 8, Linghi Chetti Street, George Town, Madras).

Movements in History (topic prescribed)—The Rise and Growth of the United States of America.

DETAILED SYLLABUS

		Lessons.
1. Introductory :		
	Colonization and Conquest of America by Europe—Ascendency of Spain—Rise of New France—Virginia and New England Colonies—British Conquest of Canada	10
2. The War of American Independence :		
	The Old Colonial System—Grievances of the Colonists—Early attempts at Union—Declaration of Independence—George Washington and his achievements	10
3. The Birth of the United States of America and its early difficulties :		
	The convention of 1787—The New Republic—The Makers of the Constitution Jefferson and Hamilton—Lousiana Purchase—The War of 1812	8
4. Westward Expansion :		
	Across the Alleghenies—The Mississippi Basin—The opening of the Middle West—The Prairie Land— The Rocky West—California and the Pacific Coast—The Trans-Continental Railway—Alaska Purchase—Influence of the Westward Expansion	10
5. The Civil War of 1861-65 :		
	The Growth of Slavery—The Two Sides, Union and Confederacy—Abraham Lincoln the Saviour of the Union and the Liberator of the Negro—U. S. Grant and Robert Lee—Reconstruction after the Civil War	10

	Lessons.
6. Reconstruction Conquest of the Wild West :	
Agricultural Expansion—The Miner and the Rancher	6
7. American Imperialism :	
The Monroe Doctrine, its Genesis and its effect—The Spanish-American War of 1898—Annexation of Hawaii—Acquisition of Cuba—The Phillippines—Theodore Roosevelt and the Panama Canal	10
8. The First World War :	
American Intervention—Woodrow Wilson and his Fourteen Points—The League of Nations	10
9. Between two Wars :	
Prosperity and depression after the War—Pussyfoot Johnson and Prohibition—The 1929 Crisis—Franklin Roosevelt and the New Deal—Promise of Independence to the Phillippines	10
10. The Second World War :	
Franklin D. Roosevelt—His Foreign Policy—Lease and Lend—War with Japan and Intervention in Europe—The Atlantic Charter—Closer understanding with Britain—The San Francisco Conference and the United Nations Organization	10
11. The American Nation :	
Its composite character—the persistence of the colour problem—Labour and invention—Education and Religion—The Government in America, its features—Position of America in World Politics ...	6
Total number of Lessons ...	100

***Books*:**

For the pupils—

Text-book for study : America Yesterday and To-day by C. F. Strong—University of London Press (Local Agents : Messrs. Orient Longmans, Ltd., Mount Road, Madras).

For the Teacher—

1. A History of the United States by C. P. Hill—Edward Arnold & Co. (Agents : Orient Longmans, Ltd., Mount Road, Madras).
2. A Brief History of the United States by Allan Nevins—Oxford University Press, Mount Road, Madras.
3. The Growth of Modern America by Eric Ecclestone—G. Bell and Sons (Agents : Orient Longmans, Ltd., Mount Road, Madras).
4. The United States of America by H. P. Raskitt, Oxford University Press, Mount Road, Madras.

Text-books for the Matriculation Examination, 1960.

ENGLISH

Poetry.—The following poems from " Poetical selections for College classes " (Macmillan) :—

Tennyson—Ulysses.

M. Arnold—The Forsaken Merman.

Wordsworth—The Solitary Reaper.

Wordsworth—To the Cuckoo.

Wordsworth—The World is too much with us.

Byron—The Ocean.

Goldsmith—The Deserted Village.

***Prose*: (*Detailed*):** Modern Prose Selections—O.U.P.

Non-detailed:
1. The Jungle book (Rudyard Krpling)—Mac millon.
2. More Tales from Shakespeare—Longmans (Simplified English Stories).

SANSKRIT

The same as the selections for the Secondary School-Leaving Certificate Examination of 1959—Published by the Madras University.

MARATHI

Prose:

Marathi Gadya—Published by Vidharba Shitya Sangha, Nagpur.

Poetry:

Sahitya Swarna—Edited by Professor R. K. Lagu (Pages 1-13 and 68-120)

Non-detailed:

Gad Ala Pan Singh Gala by H. N Apte—Book recommended for Grammar—Marathi Vyakaranchi Mul Tatva by G. H. Kelkar.

Note—Books can be had at Venus Book Stall, Poona-2, or Modern Book Depot, Poona-2, or Bapat and Co, Booksellers, Bombay-2.

HINDI

Detailed:

Prose and Poetry:

The same as for Secondary School-Leaving Certificate Examination of 1960—First Language (Parts I and II)

Non-detailed:

1. Bharat Ke Mahapurush by Sri Sant Ram (Sadhu) Asram, Hoshiarpur, Punjab.
2. Prakash Ki Oor First six Stories only—D. B. Hindi Prachar, Madras.

FRENCH

Les Astronautes by Ledesert—Harrap.

L'Homme qui doemit cen ans—Edited by O. Bond, Heath.

A new book of French verse by N. Cooper, O.U.P.

LATIN

Cornelius Nepos: Lives of Lysander, Alcibiades and Thrasybulus.

Ovid: Metamorphoses Book III, lines 407 to 510.

ARABIC

Detailed:

The same as for Secondary School-Leaving Certificate Examination of 1960.

Non-detailed:

The same as for Secondary School-Leaving Certificate Examination of 1960.

PERSIAN

Detailed and Non-detailed:

The same as for Secondary School-Leaving Certificate Examination of 1960.

URDU

Detailed and Non-detailed:

The same as for Secondary School-Leaving Certificate Examination of 1960.

TAMIL

Detailed:

The same as the selections for Secondary School-Leaving Certificate Examination of 1960 (Parts I and II)—Published by the University of Madras.

Non-detailed:

1. Tamizhaka Vendar by N. Baluswamy, M.A. (A. T. N. Nagalingam and Co., Pudumandapam, Madurai)
2. Puyal by R. Ekambaranathan (Tamilakam, Tirukalambakam, Tanjore, Rs. 1-12-0)

TELUGU

Detailed:

The same as the selections for the Secondary School-Leaving Certificate Examination of 1960 (Parts I and II)—Published by the Madras University.

Non-detailed:

Pachaiyappa by Kanchanapalli Kanakamba, published by Kavitilaka Granthamala, Vijayawada-2 (1952)

KANNADA

Detailed:

The same as the selections for the Secondary School-Leaving Certificate Examination of 1960 (Parts I and II), published by the University of Madras.

Non-detailed:

Subbana by Venkatesiengar.

Kodagina Kathegalu by G T. Narayana Rao (Government Arts College, Mercara)

MALAYALAM

Detailed:

The same as the selections for the Secondary School-Leaving Certificate Examination of 1960 (Parts I and II), published by the Madras University.

Non-detailed:

1. Otayil Ninnu by P. Kesava Dev—National Book Stall, Kottayam.
2. Kastur Bayi Gandhi by Kamalamma—Published by G. Radakrishnan, Giri Bhavan, Bhakti Vilasam Road, Trivandrum-1.

HISTORY OF INDIA AND MOVEMENTS IN HISTORY

Modern Period (1805-1935)

Text-books recommended :

An Advanced History of India, Part II (1805-1935) by C. S. Sreenivasachari (P. Varadachari & Co., No. 8, Linghi Chetty Street, George Town, Madras).

Movements in History (topic prescribed)—The Rise and Growth of the United States of America.

DETAILED SYLLABUS

1. Introductory :		*Lessons.*
	Colonization and Conquest of America by Europe—Ascendency of Spain—Rise of New France—Virginia and New England Colonies—British Conquest of Canada	10
2. The War of American Independence :		
	The Old Colonial System—Grievances of the Colonists—Early attempts at Union—Declaration of Independence—George Washington and his achievements	10
3. The Birth of the United States of America and its early difficulties :		
	The convention of 1787—The New Republic—The Makers of the Constitution Jefferson and Hamilton—Lousiana Purchase—The War of 1812	8
4. Westward Expansion :		
	Across the Alleghenies—The Mississippi Basin—The opening of the Middle West—The Prairie Land— The Rocky West—California and the Pacific Coast—The Trans-Continental Railway —Alaska Purchase—Influence of the Westward Expansion	10
5. The Civil War of 1861-65 :		
	The Growth of Slavery—The Two Sides, Union and Confederacy—Abraham Lincoln the Saviour of the Union and the Liberator of the Negro—U. S. Grant and Robert Lee—Reconstruction after the Civil War	10
6. Reconstruction Conquest of the Wild West :		
	Agricultural Expansion—The Miner and the Rancher	6

	Lessons.
7. American Imperialism :	
The Munroe Doctrine, its Genesis and its effect—The Spanish-American War of 1898—Annexation of Hawaii—Acquisition of Cuba—The Phillippines—Theodore Roosevelt and the Panama Canal	10
8. The First World War :	
American Intervention—Woodrow Wilson and his Fourteen Points—The League of Nations	10
9. Between two Wars :	
Prosperity and depression after the War—Pussyfoot Johnson and Prohibition—The 1929 Crisis—Franklin Roosevelt and the New Deal—Promise of Independence to the Phillippines	10
10 The Second World War :	
Franklin D. Roosevelt—His Foreign Policy—Lease and Lend—War with Japan and Intervention in Europe—The Atlantic Charter—Closer understanding with Britain—The San Francisco Conference and the United Nations Organization	10
11. The American Nation :	
Its composite character—the persistence of the colour problem—Labour and invention—Education and Religion—The Government in America, its features—Position of America in World Politics ...	6
Total number of Lessons ...	100

***Books*:**

***For the pupils*—**

Text-book for study : America Yesterday and To-day by C. F. Strong—University of London Press (Local Agents : Messrs. Orient Longmans, Ltd., Mount Road, Madras).

For the Teacher—

1. A History of the United States by C. P. Hill—Edward Arnold & Co. (Agents : Orient Longmans, Ltd., Mount Road, Madras).
2. A Brief History of the United States by Allan Nevins—Oxford University Press, Mount Road, Madras.
3. The Growth of Modern America by Eric Ecclestone—G. Bell and Sons (Agents : Orient Longmans, Ltd., Mount Road, Madras).
4. The United States of America by H. P. Raskitt, Oxford University Press, Mount Road, Madras.

CHAPTER XLII

Pre-University Examination

(Ordinances)

1. The Pre-University course will be conducted in constituent or affiliated colleges of the University of Madras.

Qualification for admission to the course. 2. Admission to the Pre-University course shall be open to candidates who—

(i) have passed the Matriculation Examination of this University or of any other Indian University, accepted by the Syndicate; or

(ii) have passed a qualifying examination of a University or of any duly constituted authority outside India accepted by the Syndicate as equivalent to the Matriculation Examination of this University; or

(iii) have completed the Secondary School-Leaving Certificate, or the Oriental High School-Leaving Certificate, issued by the Government of Madras or the E.S.L.C. (Anglo-Indian High School-Leaving Certificate) issued under the orders of the Government of Madras; and have been declared eligible for admission to the Pre-University course of study by this University;

(iv) have passed an examination conducted by any University, Board of Secondary Education or other duly constituted authority of any State in India accepted by the Syndicate as equivalent to the Matriculation Examination of this University:

Provided, however, that persons who have appeared for the Entrance Test to Group-D Examination, prior to the introduction of these Ordinances and qualified in such examination shall be admitted to the Pre-University

course of study for a period of five years, i.e., till the academic year 1960-61.

Duration of the course. 3. The course of study shall extend over a period of one academic year, the minimum number of working days being 180.

Course of study. 4. The course shall consist of three parts—

Part I

English.

Part II

Any one of the following languages:—

(*a*) Regional language—Tamil.

(*b*) An Indian language—Telugu, Kannada, Malayalam, Urdu, Marathi, Oriya, Hindi, Bengali and Gujarati.

(*c*) Classical language—Sanskrit, Arabic, Perisan, Greek, Latin, Hebrew and Syriac.

(*d*) Foreign language—French, German, Burmese and Sinhalese.

Part III

Optional subjects.

These shall be divided into two groups—

Group A—

(1) Mathematics.

(2) Physical Sciences with Basic Mathematics.

(3) Natural Science.

Group B—

(1) World History.

(2) Geography.

(3) Elements of Commerce or Elements of Economics.

(4) Any one of the following subjects in Fine Arts:—

(a) Drawing and Painting.

(b) Music.

(5) Household Arts.

(6) Logic or Psychology.

(7) An Advanced Course in a Language or a third language.

Every candidate shall take at least two subjects from Group A and two subjects from Group B:

Transitory Provision

(i) Provided that candidates who have offered bifurcated course of study for the S.S.L.C. Examination of the Madras State and have not taken Mathematics as one of the subjects and been declared eligible and candidates who have passed the Entrance Test to Intermediate Group-D Examination of this University be permitted to choose any one subject under Group A, and any three subjects under Group B of Part III of the Pre-University course and that this transitory provision be in force for a period of four years from the commencement of the Pre-University course, that is, till the end of the year 1960.

(ii) Provided further that candidates, who have completed the Oriental High School Examination of the Madras State and been declared eligible for admission to a course of study in this University, be permitted to choose any one subject under Group A, and any three subjects under Group B of Part III of the Pre-University course, and that this shall be in force till the academic year 1960-61.

"(iii) Provided further that *bona fide* teachers applying for exemption from the production of attendance certificates to appear for Pre-University examination be permitted to choose under Part III two subjects from Group-A and two subjects from Group-B *or* one subject from Group-A and any three subjects from Group-B *or* any four subjects from Group-B."

"(iv) provided further, that it shall be competent for the Syndicate to exempt candidates who are blind and who wish to pursue their studies for the Pre-University, from a portion of Part III of the examination, and they be permitted to take only three subjects in Humanities which do not require any practical work."

5. The object of the study of English shall be to enable the student to express his thoughts in simple English and to create in him a taste for literature. Likewise, the object of the study of the regional or other Indian languages shall be to enable the candidate to express himself fluently and write in grammatical language and to create in him a taste for standard literature in the language without assistance.

Portions to be prescribed in English shall be as follows:—

Paper I—About 600 lines of Poetry and 125 pages of Prose.

Paper II—Two books for non-detailed study, one of which may be a novel (abridged or retold) and the other a book of short stories, *or* adventure, *or* biography, *or* a collection of one-act plays.

In Paper II, the candidates shall be expected to write two essays, the topics being selected from each one of the non-detailed texts prescribed. There shall also be (i) a precis and (ii) a question on the correct use of idioms.

Portions prescribed in the languages will consist of Poetry, Drama, Prose and Non-detailed texts in accordance with the syllabus and text-books which may be prescribed from time to time.

The subjects under Part III shall be taught according to the syllabus prescribed. Where practical exercises are prescribed, a certificate to the effect that the candidate has performed the practical work or experiments prescribed and has satisfactorily undergone a test conducted by the college in the prescribed practical work will be required.

Certificate of attendance and scheme of examination.—

6. No candidate shall be admitted to the examination unless he has attended a course of instruction in the subjects prescribed for a period of one year in a constituent or affiliated college of this University and produces the necessary certificates of attendance and progress.

The scheme of examination shall be as follows:—

Part I

English.—There shall be two papers—

	Hours	Marks
Paper I—Poetry and Prose (prescribed books) ...	3	100
Paper II—Non-detailed texts and General Composition ...	3	100

Part II

Other languages:—There shall be two papers—

	Hours	Marks
Paper I—Prescribed Texts and Grammar, etc. ...	3	100
Paper II—Translation, Composition, etc. ...	3	100

Part III

Optional Subjects

There shall be one paper of three hours' duration in each of the subjects under Part III—Groups A and B, with the maximum of 100 marks for each paper.

Examination appearances.

7. A candidate appearing for the examination on the first occasion shall apply for all the three parts of the examination. At subsequent appearances, the candidate shall appear for any part of the examination in which he has not already secured pass marks.

Passing minimum.

8. A candidate shall be declared to have passed the Pre-University Examination, if he obtains—

(i) not less than 40 per cent in Part I—English;

(ii) not less than 40 per cent in Part II—Selected Second Language; and

(iii) not less than 35 per cent in each of the four subjects selected from Groups A and B of Part III.

A candidate may pass the whole examination by passing in the three parts at the same time at the same examination or at different examinations. A candidate shall be declared to have passed in any part on obtaining in that part the minimum marks prescribed for each of the subjects.

Classification of successful candidates.

9. Candidates who pass in three parts of the examination at the same time and who obtain not less than 60 per cent of the total marks shall be placed in the first class; those who obtain less than 60 per cent but not less than 50 per cent shall be placed in the second class and all the other successful candidates shall be placed in the third class.

Candidates who pass the whole examination at the first appearance and obtain 75 per cent or above in any of the subjects shall be deemed to have passed with distinction in the particular subject.

Candidates who pass the examination in more than one sitting but obtain 75 per cent or above in any of the subject will have the symbol 'D' denoting distinction recorded against the subject with a note that they have completed the examination at more than one sitting.

Symbolic representation of marks.

10. No details of the marks will be made available, but the class obtained and the symbolic representation of the grade will be indicated against each subject in the certificate granted to the candidate—

Symbol A *plus* will denote 65 per cent and above of the marks but below 75 per cent of the marks.

Symbol A will denote 60 per cent and above of the marks but below 65 per cent.

Symbol B *plus* will denote 55 per cent and above of the marks but below 60 per cent.

Symbol B will denote 50 per cent and above of the marks but below 55 per cent.

Symbol C *plus* will denote 45 per cent and above of the marks, but below 50 per cent.

Symbol C will denote the minimum percentage required for a pass or above but below 45 per cent.

Symbol D will denote distinction as having obtained 75 per cent and above in any of the subjects provided the candidate passes the whole examination at the first appearance.

If the candidate passes the whole examination at more than one sitting and obtains 75 per cent and above in any one of the subjects, the symbol 'D' will be shown against the subject or subjects, together with a note that he passed at more than one sitting.

Symbol F will denote failure.

There shall be no Moderation Board.

Appearance for additional subjects.

11. A candidate who has passed the Pre-university Examination shall be permitted to appear again for the examination in a new subject or subjects under Part III provided he has undergone the course of study prescribed in the subject or subjects selected after joining a college for one academic year. He shall be declared to have passed the examination, if he obtains not less than 35 per cent of the marks in each new subject.

Change of Language under Part II Optional subject under Part III

12. A candidate who has failed in the Pre-University Examination shall be permitted to change his language under Part II or optional subject or subjects under Part III and present himself for the examination provided he has put in a further course in the language or optional subjects concerned in a college for one academic year. He shall be declared to have passed the examination in Part II or Part III if he obtains the passing minimum number of marks prescribed in Ordinance 8 *supra*.

APPENDIX II.

PRE-UNIVERSITY EXAMINATION

Syllabuses and Text-Books

PART I

English

Two papers of 3 hours each :—

Paper I—Poetry and Prose (Detailed Texts) about 600 lines of Poetry and 125 pages of Prose shall be prescribed.

Paper II—Non-detailed Texts and General Composition.

Two books shall be prescribed for non-detailed study; one of them shall be a novel (abridged or retold) and the other may be a book of short stories, *or* of adventure, *or* a biography *or* a collection of one-act plays.

In Paper II, candidates will be expected to write two non-detailed essays (one on each book). There shall also be (i) a precis and (ii) a question on the correct use of idioms.

PART II

Languages

Tamil

Two papers of 3 hours each :—

Paper I—Poetry and Detailed Prose (Detailed)

Paper II—Composition and Translation.

Poetry

About 700 lines of Standard Poetry.

Prose : For Detailed Study.

One prose work written in modern style dealing with Tamil Literature and Culture, serving as an introduction to the study of Tamil Classical Literature in the Degree Course.

Composition and Translation :

Composition on non-detailed text and general subjects and Translation from English into the language.

Telugu

Two papers of 3 hours each :—

Paper I—Poerty, Prose and Elements of Telugu Grammar, Prosody and Poetics.

Paper II—Composition and Translation.

Poetry :

Poetry 800 lines.

Prose :

Detailed : about 80 pages.

Non-detailed : 2 short novels

Elements of Telugu Grammar, Prosody and Poetics :

No text-book is prescribed but a Syllabus is given to indicate the scope of study.

A. Grammar :

1. Telugu Alphabet: Vowels and Consonants and the Organs of Speech and the part they play in pronouncing them.

2. Parts of Speech: Nouns, Pronouns, Adjectives, Verbs and Indeclinables and their characteristics.

3. The fundamental features of *Kala* and *Drutaprakrika*.

4. The main principles of *Sandhi* in
   (*a*) Sanskrit—Savarna Dirgha, Guna, Vriddhi and Yanadesa.
   (*b*) Telugu—The several vowel—Sandhis *Drutaprakrika* Sandhi and the letters that fill up the hiatus.

B. Prosody :

1. The main features of Guru and Laghu, Matra Ganas, Akshara Ganas, Surya and Indra Ganas and of Yati and Prasa.

2. The features of Kanda, Tetagiti, Ataveladi Sisa, Dvipada, Utpalamala, Champakamala, Sardula and Mattebha.

C. Poetics :

The main features of Upama, Rupaka, Svabhavokti, Atisayokti, Anuprasa and Yamaka :

Kannada

Scheme of Studies :

Poetry 2 hrs. ; Prose 1 hr. ; Composition and Translation 1 hr. Two papers of 3 hours each :—

Paper I—Poetry and Prose.

Paper II—Non-detailed text, General Composition and Translation.

Poetry :

(I) 800 lines of Old Poetry from three different Poets: one classical, and two mediaeval and (2) 400 lines of Modern Poetry.

Prose :

One Prose of work written in modern style which may be a prose drama, a novel or essays on subjects relating to Arts and Sciences, Travels or Biographies.

Non-detailed Study :

One book written in modern style.

Composition and Translation :

Composition on general subjects and Translation from English into Kannada.

Malayalam

Two papers of 3 hours each :—

Paper I—Questions on Text-books prescribed for detailed study, grammar and idiom.

Paper II—Questions on books prescribed for non-detailed study, Original Composition and Translation from English to Malayalam.

Paper I :

(*a*) *Poetry* :

About 1,000 lines of Classical Poetry preferably from the work of Cherussery, Ezhuthachan or Kunchan Nambiar.

About 1,500 lines of modern poerty from any two works preferably from those of Kumaran Asan, Ulloor, Vallathol, G. Sankara Kurup, Vennikulam, Kuttamath or P. Kunhi Raman Nayar.

(*b*) *Prose* :

There shall be two books each of which may contain 150 to 200 pages. One shall be a selection of essays on topical interest and the other a narrative type, viz., Biography, Travel, books on Science, History, Politics, Economics or Sociology.

(*c*) *Grammar and Idiom* :

The Pure Grammar as it is may be excluded from the scope of the course. Only the important and popular figures of speech (Alankara) and metres (Vritta) pertaining to the detailed texts need be pointed out.

Paper II:

(*a*) *Non-detailed Text:*

One Text-book of about 200 to 250 pages of light reading is to be prescribed.

(*b*) *Original Composition:*

The subject should be on modern thought or on current affairs or on any aspect of Malayalam Literature.

(*c*) *Translation from English to Malayalam.*

Marathi

Scheme of studies:

(i) (*a*) For detailed study—

Selection from—

(1) Ancient and Modern Poetry.

(2) Modern Prose.

(*b*) For Non-detailed study—

Collection of short stories.

(ii) Knowledge of elementary grammar is essential but extensive and minute details are not expected. Question on applied grammar alone shall be asked.

(iii) Translation from English into Marathi.

(iv) General Composition.

Scheme of Examination: Two papers of three hours each:—

Paper I—Questions on the text-books prescribed for detailed study and applied grammar.

Paper II—A question on the book prescribed for non-detailed study, a general composition and a passage for translation from English into Marathi.

Hindi

Two papers of three hours each:—

Paper I—Questions on the Text-books prescribed for detailed study and Applied Grammar.

Paper II—Questions on the book prescribed for Non-detailed Study a General Composition and a passage for Translation from English to Hindi.

(i) Selection from

(*a*) Ancient and Modern Poetry for Detailed Study.

(*b*) Modern Prose for Detailed Study and

(*c*) A collection of short stories for Non-detailed Study.

(ii) Knowledge of Elementary Grammar is essential but extensive and minute details are not expected. Questions on Applied Grammar alone shall be asked.

(iii) Translation from English to Hindi.

(iv) General Composition.

Sanskrit

Two papers of 3 hours each—

Paper I—Prose and Poetry including one question on Grammar based on the prescribed Text-books.

Paper II—Translation from Sanskrit and into Sanskrit including seen and unseen passages.

Text-books—Poetry selection about 200 verses.
Prose about 20 pages.

Latin

Paper I—Prescribed Text and Grammar.

Paper II—Composition and unseen Translation.

Prescribed Text:

One book of Caesar's Gallic War.

French

Paper I—Prescribed Text and Grammar.

Paper II—Composition and unseen Translation.

Prescribed Text:

One Prose book of not more than 100 pages.

Arabic

Two papers of 3 hours each —

Paper I—Questions on the Text-books prescribed for Detailed Study and Grammar.

Paper II—Translation from English into Arabic and Vice Versa.

Persian

Two papers of 3 hours each —

Paper I—Questions on the Text-books prescribed for Detailed Study and Grammar.

Paper II—Translation from English into Persian and Vice Versa

Urdu

Two papers of 3 hours each—

Paper I—Questions on the Text-books prescribed for Detailed Study and Grammar.

Paper II—Composition and Translation. One Question on Composition from Study of Non-Detailed Text, one Question on General Composition and Passages for Translation from English into Urdu and Vice Versa.

Syriac

***Scheme of studies*:**

Paper I—Prose, Poetry and Grammar based on the prescribed text-books.

Prose selection about 10 pages.

Poetry selection about 80 lines.

Paper II—Translation from Syriac into English including seen and unseen passages, and from English into Syriac (seen passages only).

PART III

Optional Subjects.

GROUP A —1. Mathematics.

The Course shall comprise the following.—

(*a*) *Algebra.*—Laws of addition and multiplication, Remainder Theorem and its applications. Index laws, Logarithms and applications. Theory of the quadratic equation. Graphs. Easy types of simultaneous equations, linear and quadratic in two variables. The three progressions and series whose summation depends on A.P. and G.P. Sum of squares and cubes of natural numbers. Definition of nCr. and its value. Binomial Theorem a positive integral index. Simple problems on the above.

(*b*) *Plane Trigonometry.*—Measurement of angles in degrees and radians. Trigonometrical functions and their relations to one another. Sine, Cosine and Tangent of $\frac{\pi}{2} + \theta$, $\pi \pm \theta$, and $-\theta$. Graphs of Sin x Cos x and Tan x. Addition and duplication formulae. Product formulae. The following theorems in the properties of triangles:

(i) $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} = 2R.$

(ii) $a^2 = b^2 + c^2 - 2bc \cos A$

(iii) $r = \frac{\Delta}{s}, r_1 = \frac{\Delta}{s-a}, r_2 = \frac{\Delta}{s-b}, r_3 = \frac{\Delta}{s-c}$

(iv) $\Delta = \frac{1}{2} bc \sin A$

(v) $a = b \cos c + c \cos B.$

Simple identities connected with angles of a triangle.

(*c*) *Pure Geometry.*—Proofs of the following theorems and easy deductions:

(1) A given straight line can be divided internally or externally in a given ratio at one and only one point.

(2) A straight line drawn parallel to one side of a triangle cuts the other two sides, or those sides produced, proportionally; and the converse.

(3) If the vertical angle of a triangle is bisected internally or externally the bisector divides the base internally or externally into segments which have the same ratio as the other sides of the triangle; and the converse.

(4) Triangles and parallelograms of equal altitude are to one another as their bases.

Similar triangles.—

(5) If 2 triangles are equiangular, their corresponding sides are proportional; and the converse.

(6) If 2 triangles, have one angle of the one equal to one angle of the other and the sides about these equal angle, proportional, the triangles are similar.

(7) If from the right angle A of a right angled triangle ABC AD is drawn perpendicular to BC then (i) AD is the mean proportional between BD and DC; (ii) BA is the mean proportional between BD and BC and (iii) CA is the mean proportional between CB and CD.

(8) Similar triangles are to one another as the squares on their corresponding sides.

(*d*) *Analytical Geometry.*—Cartesian rectangular co-ordinates of a point; Distance between two given points; Co-ordinates of a point dividing the line joining two given points in a given ratio internally or externally.

Area of a triangle given the three vertices.

Equation of a straight line (1) in terms of the slope and intercept of the Y-axis; (2) passing through a given point and having a given slope; (3) passing through 2 points. Co-ordinates of the point of intersection of 2 straight lines. Conditions for parallelism and perpendicularity.

Equation of a circle given centre and radius. Easy problems on the above.

There shall be one paper of 3 hours' duration having 100 marks as maximum. There shall be 9 questions on the whole : 3 in Algebra, 2 in Geometry, 2 in Analytical Geometry and 2 in Trigonometry. Out of these 9 questions candidates must answer three-fourths to secure maximum marks.

2. Physical Sciences with Basic Mathematics

(*a*) Basic Mathematics

(*N.B.*—Application to problems in Physics and Chemistry only.)

Solutions of Equations of 1st Degree with one or two unknowns. Knowledge of formula giving root of quadratic equation. Law of indices. Knowledge of $(1 + x)_n = 1 + nx$, where x is very small. Use of logarithmic tables in calculations. Relationship of angles formed by transversal across parallel lines. Simple properties of triangles

including the theorem of pythogoras. Tangent; circumference and area of a circle. Intersecting chords. Area and volumes of spheres and cylinders. Trigonometrical ratios and their mutual relationships. Circular measure of angles.

(b) Physics

(*N.B.*—Lectures shall be accompanied by demonstrations.)

Mensuration.—Fundamental and derived quantities and their units. Forward reading vernier. Slide callipers and screw gauge. Weighing (Correct to a centigram) by vibration method.

Dynamics—Displacement, speed, velocity and acceleration. Derivation and simple applications of equations of motion of an object moving in a straight line with uniform acceleration. Vertical motion under gravity. Measuring 'g' by means of the simple pendulum. Newton's laws of motion: Definition of force, derivation of F=ma. Distinction between mass and weight, Law of conservation of momentum (no proof). Work, Energy Power and their units. Law of conservation of Energy.

Statics—Statement of the law of parallelogram of forces Conditions of equilibrium of a body acted on by (1) three force(Triangle of forces), (2) any number of coplanar parallel forces (no proof or verification is required). Centre of gravity in simple cases Lamina—circle, triangle and parallelogram; solids—spheres and cylinders (no proof). Experimental determination of centre of gravity of a lamina. States of Equilibrium.

Hydrostatics.—Pressure and thrust in a liquid at rest. Use of Expression P—hdg. Archimedes' principle and determination of specific gravity. Law of floatation. Use of common Hydrometer. (Balancing columns. Atmospheric pressure. Fortin's Barometer. Boyles Law, manometers.

Heat.—Temperature and its measurement with a mercury-in-glass thermometer. Centigrade and Fahrenheit scales. Six's maximum and minimum thermometer. Clinical thermometer.

Determination of co-efficient of linear expansion of solids and co-efficient of apparent expansion of liquids. Volume Co-efficient and pressure co-efficient of a gas. Charles' law. Absolute temperature. Use of the Expression PV/T—Constant.

Unit quantity of heat; Thermal capacity, Specific heat and its determination. Latent heats and their determination. Qualitative study of convection, conduction and radiation. Concept of mechanical equivalent of heat.

Light.—Rectilinear propagation of light. Laws of reflection. Image due to a plane mirror. Laws of refraction. Image due to normal refraction at a plane surface (proof not required), course of a ray through a rectangular slab and a prism. Critical angle and total internal reflection. Spherical mirrors and thin lenses. Principal focus. Use of formula $\frac{I}{u}+\frac{I}{v}=\frac{I}{f}$ adopting real is positive convention (No proof required). Magnification. Dispersion, Pure spectrum.

Magnetism.—Properties of magnets. Poles. Law of inverse squares. Pole strength. Field strength. Lines of force. Moment. Field due to a short magnet at a point along its axis (no derivation, statement only). Elements of the Earth's magnetic field.

Electricity.—Nature of magnetic field around a straight wire carrying current. Cork screw rule. Magnetic field at the centre of a circular coil carrying current. The ampere and coulomb. P.D. and E.M.F. The volt, Ohm's law, the ohm, resistance in series and in parallel, Specific resistance. Use of ammeters and voltmeters. Joule's laws of heating, determination of J. The Kilo-Watt Hour. Laws of Electrolysis. Concept of alternating current.

Sound.—Production and propagation of sound. Characteristics of a musical note.

List of Experiments in Physics.

(To be done individually)

1. Callipers and screw gauge.
2. Simple pendulum—finding g.
3. Balance—Specific gravity of a solid by Archimedes' principle
4. (*a*) Hare's apparatus and (*b*) Test-tube float hydrometer.
5. Specific heat of a solid by the method of mixtures.
6. Co-efficient of linear expansion.
7. Co-efficient of apparent expansion of a liquid using a density bottle.
8. Reflection at a plane surface.
9. Refraction through a rectangular glass slab.
10. Finding focal length of (*a*) concave mirror and (*b*) Convex lens
11. Mapping resultant magnetics field when a short magnet is placed (*a*) North pole pointing north and (*b*) North pole pointing south, and calculating polestrength from the second map.
12. Measuring resistance by using an ammeter and a voltmeter.

Books for reference—

1. General Physics by Whiteley, University Tutorial Press, Ltd.
2. A Manual of Physics by J.A. Crowther, Oxford Medical Publications.
3. Intermediate Physics by Houston (Longmans)
4. Elementary Physics by Littler (Longmans)
5. Elementary Physics by Nightingale (Bell)
6. Physics for General Science by Kearsey (Longmans)
7. School Physics by Joshi (O.U.P.)
8. Principles of Physics by Nelkon (Christophers)

(c) Chemistry

I. Theory—

(*N.B.*—Lectures shall be based on illustrative lecture-demonstrations)

1. Mixtures and simple substances.

   Physical and Chemical changes. Decantation, filtration, fusion, sublimation, distillation.

2. Elements and compounds.
3. Hydrogen and oxygen; their preparation, properties and uses.
4. Water and its purification. Solutions, crystallisation.
5. Atoms and molecules. Elements of atomic theory, Valency of elements. Symbols, formulae and equations.
6. Preparation and properties of chlorine, hydrogen chloride, sulphur, hydrogen sulphide, sulphur dioxide and sulphuric acid.
7. Air and nitrogen. Preparation and properties of ammonia, nitric acid and carbon dioxide.
8. Phosphorus.
9. Differences between metals and non-metals. Methods of obtaining metals, properties of metals. Sodium, potassium, copper, magnesium, calcium, zinc, mercury, aluminium, tin, lead and iron.
10. Preparation and uses of the following.—

    (*a*) Hydroxide, carbonate, bi-carbonate, chloride and hypochlorite of sodium.

(*b*) Nitrate, chlorate, permanganate and dichromate of potassium
(*c*) Chloride, carbonate and sulphate of ammonium.
(*d*) Sulphates of copper, zinc, magnesium and calcium.
(*e*) Calcium oxide, calcium carbonate, ferrous sulphate, ferric chloride, ferrous ammonium sulphate, silver nitrate and alums.

11. Equivalents of an acid, a basi, an oxidising agent and a reducing agent.

II. Experiments (14 practical classes).—

1. Bunsen burner, flame.

2. Separation of the ingredients of a mixture of two components.

3. Action of heat on substances like.—(*a*) potassium chlorate, lead nitrate, and ammonium dichromate; (*b*) a mixture, of iron and sulphur.

4. Precipitation and properties of Silver chloride, copper sulphide, zinc sulphide, lead iodide, mercuric iodide, ferric hydroxide, manganese hydroxide, magnesium hydroxide, calcium carbonate, barium chromate and sulphate, and magnesium phosphate.

5. Action of zinc on copper sulphate solution and copper on silver nitrate solution.

6. Preparation of the following salts: Copper sulphate from copper carbonate and ferrous sulphate from iron.

7. Determination of the strength of (*a*) a solution of sodium hydroxide with a mineral acid and (*b*) a solution of a ferrous salt with potassium permanganate.

8. Equivalent weight of: (*a*) a metal like magnesium by the displacement of hydrogen and (*b*) a metal like copper by conversion to oxide.

9. Determination of the solubility of a salt in water at the room temperature.

10. Collection and study of any one of the following: hydrogen, oxygen, chlorine or ammonia.

Books Recommended:

1. **Holmyar, E. J.: A Junior Chemistry.**
2. **Partington, J. R.: Everyday Chemistry.**

3. Mellor, J. W.: Intermediate Inorganic Chemistry.
4. Foster and Alyea: Introduction to General Chemistry.
5. Dobbin and Walker: Chemical Theory for beginners.

3. Natural Science

BIOLOGY

(*a*) The Syllabus pre-supposes the teaching of the Botany and Zoology parts separately by qualified teachers.

(*b*) A single written theory paper should be set, answered and valued separately by qualified teachers; marks should be equally divided between the two parts and an equal number of questions from the two parts should be attempted.

(*i*) Botany

(1) Characteristics of living organisms: animals and plants—their distinction.

(2) The nature of protoplasm; the structure and physiology of the cell; cell-division, cell-differentiation and tissue formation including an elementary knowledge of histology and functions of epidermis, parenchyms, sclerenchyma, collenchyma, zylem and phloem.

The fundamental form and structure of root, stem and leaves in the sunflower plant.

(3) Sexual and non-sexual reproduction.

Flower and its parts, pollination, fertilization, fruits and seed.

(4) Nutrition of plants; Photosynthesis.

(5) The parasitic and saprophytic modes of nutrition, as exemplified in *Mucor*, yeast plant, Bacteria and *Cuscuta*.

(6) Alternation of generations in *Riccia* and a Fern.

(7) Gradation of plants; plant phyla.

Practicals demonstrating the following:—

(1) The Structure of *Oscillatoria*, *Spirogyra*, *Mucor* and *Agaricus*.

(2) Structure of a monocot flower.

(3) Structure of a dicot flower.

(4) Castor seed ; its parts and germination.

(5) Comparative examination of the structure of a dicot stem and root.

Note —Demonstration experiments on respiration and photosynthesis of plants are expected.

***Books Recommended*:**

Sinnot and Wilson	...	Botany—Principles and problems.
McLean and Cook	...	Text-book of theoretical Botany.
Pool	...	Basic Botany.
Ramsbottam	...	Popular book of Botany.
Holman and Robbins	...	Text-book of General Botany.
Villee, C.A. and Saunders, W.B.	...	Biology.
Weisz, P.D.	...	Biology.
Marvin, J., Taylor and Raynor.		Introduction to Botany.
Guilcher, J. M. Translated by Naollies, R.H.	...	The hidden life of flower.
Emerson, F.W.	...	Basic Botany.
Das, K.S. and Mookerji, P.B.	...	Outlines of Biology.
Knowles, F.G.W.	...	The living organism.
Kenoyer, L.A. and H.N. Goddard	...	General Biology.
Winchester, A. M.	...	Biology.
Palmer, R.	...	Living Things.
Felton, C. L.	...	Our Living World.

(*ii*) Zoology and Physiology

1. An elementary knowledge of the histology and functions of Epithelia, blood, connective, skeletal, muscular and nervous tissues and germ cells of animals. The structure and functions of the more important organs of cockroach and man.
2. An elementary knowledge of the metabolism of protein, Carbo-hydrates and fats.
3. Digestion, absorption and assimilation in animals. An elementary knowledge of Vitamins. The role of enzymes, the transport of Food material in animals.
4. Respiration; Excretion; an elementary knowledge of the nervous mechanism in a vertebrate (Man); an elementary knowledge of the endocrine organs in man.
5. An outline knowledge of the classification of animals to illustrate the gradation of animals.

6. Modes of nutrition as exemplified by malarial parasite; round worms.
7. An outline knowledge of the evidence of evolution.
8. The life-history of frog and butterfly as illustrating metamorphoses. An outline of the life history of malarial and filarial parasites as involving an intermediate host.

Practicals demonstrating the following:

1. The organs in cockroach.
2. The organs of alimentation in frog.
3. The organs of reproduction in frog.
4. The organs of excretion in frog.
5. The organs of respiration in frog.

(The dissection of the frog is to form the basis of study of the vertebrate organism.)

Note —Demonstration of human anatomy from models, charts etc.

Group B—(1) World History

1. *Pre-historic man.*—Archaeological evidence about early man. The invention of stone and metal tools and weapons.

2. The civilizations of the ancient world; Egyptian Sumerian Indus Valley, Cretan, Babylonian, Assyrian and Persian.

3. *Ancient India.*—The Vedas and the epics. Early Hindu kingdoms of the North.

4. *The rise of Buddhism and Jainism*—Mahavira, Gautama the Buddha. Asoka—the spread of Buddhism to South-East Asia and the Far-East.

5. *Greece.*—The City-States and their Government. Relations between Persia and Greece till the 4th Century B.C.—Alexander. The Legacy of Greece.

6. *Rome.*—The rise of the Roman Republic. The expansion of Rome, and the transition to the empire. Julius Caesar and Augustus. The contribution of Rome to Government and law.

7. The rise and spread of Christianity—Jesus—Constantine. The Barbarian invasions and the Fall of Rome.

8. The growth of empires in India. Mauryas, Kushans, Guptas, Harsha. The Tamil Kingdoms. The Vijayanagar empire. The spread of Indian culture overseas.

9. The rise of Islam-Mohamed. The Caliphate. The Moors in Spain. The Delhi Sultanate.

10. The Middle Ages in Europe Feudalism. The Holy Roman empire. The church and the monastic orders. The Crusades.

11. The Renaissance and the growth of European States—Revival of learning. The reformation Geographical discoveries and the beginning of colonialism in America and Asia. The growth of nation-States. Spain, France, Great Britain.

12. *Asia in the 16th* and 17th *centuries.*—The Moghuls in India. China under the Mings and Manchus. Unification of Japan.

13. *The age of despots in Europe.*—Louis XIV—Peter the Great—Frederick the Great.

14. *The revolutionary era in Europe*—1789-1848.—The French Revolution—Napoleon. The Congress of Vienna—The Revolutions of 1830 and 1848.

15. *The emergence of America.*—War of American Independence and the foundation of the U.S.A. The liberation of Latin America. The Civil War in the U.S.A.

16. *Nationalism in 19th century Europe.*—Germany, Italy, South-Eastern Europe.

17. *The opening of the new continents.*—Africa and Australia.

18. The Industrial Revolution in Europe and its effects.

19. *Modern Asia.*—The rise of Japan. The Russo-Japanese War. The founding of the Chinese Republic. The British in India. Indian nationalism. Holland and the Netherlands—East Indies. France and Indo-China. The U.S.A. and the Phillippines.

20. *The 20th century world.*—World War I. Causes and effects. The Russian Revolution. The League of Nations. Fascism and Nazism. The Sino-Japanese War. World War II. Indian Independence. The free States of Asia—The U.S.A. and the U.S.S.R. as world Powers. The U.N.O.

NOTE.—The course in World History is expected to be covered in outline only.

Books for study—

(1) Davies—An Outline History of the World.
(2) Panikkar—Survey of Indian History.
(3) Pearce—Outline History of World Civilization.
(4) Rawlinson—A Concise History of India.

(2) Geography

One Paper—3 hours—100 marks.

Physical:

Section (*i*) (*a*) Elementary study of temperature, pressure and winds and precipitation.

(*b*) Land—Study of major relief features correlated with weathering and denudation.

35—40 hours.

(c) Sea—Temperature, Salinity and surface currents.

Section (*ii*) Study of man in relation to his environment. Typical examples to be selected from the following:—

(*a*) Hot-wet Lands.

(*b*) Monsoon lands of Asia.

45—50 hours.

(*c*) Mediterranean Lands.

(*d*) Deserts—Hot and Cold.

(*e*) Temperate Grass Lands.

(*f*) Western Europe and the U.S.A.

Practical:

Section (*iii*) Elements of Map work.

No University Test (*a*) Scales and Contours.

(*b*) Elements of map setting, measuring and reading.

(*c*) Diagrammatic representations.

Books for Reference and Study:

1. Preece and Wood, Part I: Foundations of Modern Geography.
2. C. S. Fox: Physical Geography for Indian student.
3. Stembridge: World.
4. Brooks: Natural Regions.
5. Geography for Today—Book V—World—Ed. by Stamp and Suggeate.
6. Pickles: Intermediate Map reading.
7. Bygott: Map work and Practical Geography.
8. Oxford Junior School Atlas.

(3) (*i*) Elements of Commerce

Part A: Fundamentals of Double Entry—Subsidiary Books—Ledger—Adjusting Entries—Trading, Profit and Loss Account—Balance Sheet.

Part B: Economic Goods—Wants—The Law of Demand—Law of Production—The Law of supply—Pricing in a Market—Types of Business Organisation—Money—Qualities of good money—Kinds of money—Functions and kinds of Banks—Wholesale and Retail Trading—Elementary ideas regarding the documents of Trade—Advantageous of Foreign Trade—Chief Methods of Transport and Communication.

Note —The Paper shall be of three hours' duration and shall be divided into two Parts—A & B—'A' comprising questions in Book-keeping and 'B' questions on General Principles of Commerce.

Books for Reference:—

Batliboi: Double Entry Book-keeping.

Vaidyanathaiyer: Book-keeping.

Jathar and Beri: Elements of Economics.

Silverman: Substance of Economics.

(3) (*ii*) Elements of Economics

1. **Introductory**:—Subject matter of economics and its relations to other social services—main sub-divisions—important stages of economic development.

2. **General notions**:— of wealth, goods, income, value and price-market.

3. **Wants and their satisfaction**—utility—standard of life—Family expenditure—Demand and its elasticity.

4. **Production of wealth**—factors of production—Land, Labour, capital and organisation—Types of economic organisation—small-scale and large-scale production—Laws of returns.

5. **Value and exchange**:—Markets—Price—competition—monopoly.

6. **Mechanism of exchange**:—Money—forms and functions—monetary standards—changes in prices—Credit and Banking—Commercial and Central Banks.

7. **International Trade**:—Theory—Trade Policy—exports, imports—balance of trade—balance of payments.

8. **National income and distribution**—Rent, wages, interest, Profits—general theory of distribution.

9. **State and economic activity**—Revenues and expenditure of governments—Free enterprise—Socialism, communism—welfare State—economic planning.

N. B.: (i) The treatment of the subject is to be elementary and general, wherever possible, illustrations from Indian conditions should be used in the course of teaching and explanations.

(ii) The scope of the subject is indicated by the following text-books:—

(1) Jather & Beri: Elementary Economics (Oxford University Press) (5th Edition)

(2) Arthur Birnie: Outline of Economics (Longmans).

(4) FINE ARTS

(a) Drawing and Painting

Practical

I Term: 23 hrs.

Introduction:

Easy terminology, study of lines ... ... 2 hrs.

Nature drawing:

(*a*) Simple leaves, branches, fruits etc., in pencil only 2 hrs.

(*b*) Trees in pencil only ... ... 2 hrs.

Object drawing:

Introduction to perspective through observation ... 2 hrs.

Using:

Straight-line objects ... ... 2 hrs.

Curved-line objects ... ... 2 hrs.

Illustration by clear and simple diagrams for (out-door) space-perspective ... ... 4 hrs.

Nature drawing:

Out-door sketches, practical application of the previous lessons ... ... 7 hrs.

II Term: 16 hrs.

Nature drawing : (*in water colour*)

(*a*) Simple leaves, branches, blossoms, single flowers or fruits ... ... 8 hrs.

(*b*) Very simple "landscapes" with a big space for sky studies. ... ... 8 hrs

III Term: 16 hrs.

Decorative Art: (*Water or Tempera colour*)

(*a*) *Border*:

Repetition of motifs in a simple border ... ... 8 hrs.

and

(*b*) *All-over pattern*:

For a book cover or cloth etc. ... ... 8 hrs.

History of Fine Arts (32 hours).

Introduction (1 hour)

History of Indian Art (16 hours):

Proto-History Period: Indus Valley Civilization (1 hour):

Historic Periods:

Architecture (7 hours) Stambha, Stupa, Chaitya Hall, Brahmanical Temple (Northern, Southern, Hoysala style), Indian Mosque; Islamic Tomb.

Sculpture (6 hours) Sunga and Early Andhra (Bharhut, Bodh Gaya, Sanchi); Later Andhra (Amaravathi); Gandhara; Mathura, Gupta; South Indian Bronzes.

Painting (3 hours) Ajanta; Moghul; Rajput.

History of World Art (15 hours)

1 hr. Egyptain Art. Architecture. The Pyramid. Sculputure. Some examples from the Old Kingdom.

1 hr. Greek Art Architecture. The Orders; The Parthenon. Sculpture. Some examples especially from 5th Century B.C.

1 hr. Roman Art. Architecture. Various types of Buildings. Sculpture. Portraits.

1 hr. Early Christian Art. Architecture. The Bascilia.

1 hr. Byzantine Art. Architecture. The Hagia ; Sophia. Minor Arts. The Mosaic.

1 hr. Romanesque Art. Architecture. S. Ambrogio, Milan.

1 hr. Gothic Art. Architecture; Sculpture;
Minor Arts. Stained Glass
(Illustrated on the Cathedral of Charters).

6 hrs. Renaissance Art in Italy. General Character and outlines of the Early Renaissance; Leonardo da Vinci; Michelangelo; Raffael.

2 hrs. Renaissance Art in the Netherlands. Flemish Art. Van Eyck Brothers; Dutch Art. Embrandt.

BIBLIOGRAPHY

INDIAN ART

The Art and Architecture of India: Benjamin Rowland (The Pelican History of Art).

Indian Art: A. G. Rawlinson; K. de B. Cordington; J. V. S. Wilkinson & J. Irwin; Faber & Gaber, London.

Indian Architecture: Buddhist and Hindu Periods; Percy Brown; Islamic Period; Percy Brown. Taraporewala, Bombay.

Indian Painting: Percy Brown, Y.M.C.A., Calcutta.

Classical Indian Sculpture: Chintamoni Kar, 1950; Alex Tirant Ltd., London.

Indian Metal Sculpture: Chintamoni Kar, 1952; Alex Tirant Ltd., London.

Rajput Painting: Basil Gray; The Faber Gallery of Oriental Art.

Mughal Painting: J. V. S. Wilkinson; The Faver Gallery of Oriental Art.

Indian Temples: O. U, P. O.—Monod-Bruhl.

Marg. Vol. 2, *No.* 4: Special Dipavali No. (contains good illustrations of Ajanta Wall-Paintings.)

Early Indian Sculpture: Volumes I, II; L. Bacchofer.

1. An advanced History of India by Majumdar Raychaudhuri of Kalikinkar Datta (pp. 224-254; 378; 410-421; 584-601).
2. History and culture of the Indian People (General Editor, R. C. Majumdar) Chapters on Arts in the different Volumes.

WORLD ART

Art throughout the ages: Helen Gardener. 3rd Edition; G. Bell & Son., London; Harcourt, Brace & Co., New York.

Understanding the Arts: Helen Garden; Harcourt, Brace and Co., New York.

An Illustrated Handbook of Art History: Frank Ross, Macmillan, New York.

A History of Architecture on the Comparative method: Banisterg Fletcher.

Encyclopaedia of Arts: Louis Hourticq, Vols. I & II; George Harrap & Co., London & Bombay.

PERSPECTIVE.

The Principles of Model : Common object Drawing: B.A. Branch, London; Ralph Holland & Co., Temple Chambers, E.C.

(*b*) MUSIC

(i) Indian Music

The Syllabus for Indian Music—One year duration. Based on the availability of 4 hours per week, 2 hours for Theory and 2 hours for Practical.

THEORY.

Music as one of the Fine Arts.

The place of Music in Life.

The cultural, intellectual, emotional and spiritual value of Music.

Indian Music and its place amongst the musical systems of the world. Distinctive features of Indian Music.

Notation used in Indian Music.

Raga, the pivotal concept of Indian Music. Raga classification in general. Janaka raga and janya raga; varja raga and vakra raga; upanga raga and bhashanga raga.

An outline knowledge of the lakshana of the following ten ragas:—

Mayamalavagaula.	Sankarabharana.
Bhairavi.	Hamsadhvani.
Madhyamavati.	Bilahari.
Mohana.	Pantuvarali.
Kambhoji.	Kalyani.

The Sapta talas and their constituent angas.

Chapu tala and its varieties. Talas figuring in concert forms viz: Adi, Rupaka and Jampa, Triputa and Chapu talas.

Musical forms and their classifications. Lakshana of the forms Gita, Swarajati, Varna and Kriti.

Folk music and its characteristics.

Musical instruments and their classifications into stringed, wind and percussion groups. Polyphonous and Monophonous instruments. Varieties of drones.

Varieties of concerts. The different types of concerts and the types of performers figuring in them. Music concert, dance concert, Kalakshepam and Bhajana. Accompaniments used in concerts.

An outline knowledge of the life and contributions of the following composers —Purandaradasa, Tyagaraja, Muthusami Dikshitar, Syama Sastri and Gopalakrishna Bharati.

Ability to reproduce in notation compositions learnt.

Practical.

The preliminary Swara exercises. The Sapta tala alankaras. Six Gitas, one Swarajati, 4 tana varnas. Ten simple kritis, one in each of the 10 ragas prescribed under theory. One each of Tevaram, Tiruppugazh and Divyanamakirtana.

Ability to sing from sight, any passage given in the above *ten* ragas.

BOOKS OF REFERENCE.

In English:

Oriental Music in European Notation by A. M. Chinnaswami Mudaliar.

Music of India by H. A. Popley.
South Indian Music—Books 1-3
Great Composers—Books 1 and 2
Dictionary of South Indian Music and Musicians.
} P. Sambamurti.

Mahabharata Choodamani, Chap. IV—Madras Government Oriental Series.

Thyagaraja's Kirtis set to notation by C.S. Iyer.

In Tamil:

Practical Course in Karnatic Music, Books 1-3 : P. Sambamurti.

Thyagaraja Hridayam
Sangita Chintamani.
} K. V. Srinivasa Iyengar.

Kirtana Sagarm, Books 1 and 2 : P. Sambamurti.

In Telugu:

Tachur Singaracharlu's : Books 1-3.

(ii) Western Music

Theory: *One paper.*

Practical:

(1) *Notation*—

Positions of Notes on the Staffs Leger Liness Treble and Bass Clefss Accidentals Major and Minor (both forms) Chromatic Sales Key-signatures transposition of a Melody from Treble to Bass Clef, or vice versa, and from one key to another, naming the key of a given passage and supplying its Key-signature.

(2) *Time*—

Relative duration of sounds; Notes; Rest; Dots; Ties; Staccato-marks; the Pause; Regular and irregular grouping of Notes; Syncopation; adding Time-signature and Bar-lines of a given Melody; re-writing a passage with altered note—values after a different Time-signature; completing a Bar by the addition of Rests or Notes.

(3) *Intervals*—

Diatonic and Chromatic Intervals, Simple and Compound, Direct and Inverted.

(4) *Terms and Signs in General Use*—

Words (English and Italian only) and marks indicating Tonal variety and Contrast, Speed and general directions as to performance; abbreviations; Embellishments, the Appoggiature, Pralltriller, Mordent, Turn, Shake, After-note and Slide.

(5) *Transposition and Terms*—

(*a*) Transposition of a simple example from Clef to Clef from Key to Key, and from Short to Open Score, or vice versa.

(*b*) Knowledge of terms used for the writing of chords, and for Part-writing; naming the Key of a given passage and supplying the Key-signature.

(6) *Figuring of Basses*—

Figuring the Bass of a simple example of Vocal Harmony up to and including Chords of the Seventh and their inversions.

(7) *Harmony*—

(*a*) Simple Exercises on Triads and their Inversions; the dominant Seventh and its inversions and Resolutions.

(*b*) The construction and designation of Cadences.

(8) *Melodic Analysis and Modulation—*

(*a*) The analysis of a simple eight-bar melody into "fore" and " after " phrases and sections.

(*b*) The indication of Key-changes in a given example.

Practical :

1. *Studies—*

One complete group chosen by the candidate from either Album alternatively a complete group from one of the three Official Books of Studies Pianoforte Senior Album.

2. *Pieces—*

Group 1. Shield-Moffat : Minuet.
Sibelius : Arabesque Pp. 76, No. 9. Augener.

Group 2. Mozart : Courante from K. 399.
Rowley : Scherzo. Hammond.

Group 3. Arne : Movement from Sonata No. (Cundell).
Chopin : Valse in C Sharp minor Op. 64, No. 2. Williams.

Group 4. Mendelsson : Songs without Words (No. 45 in G).
Love lock : Arabesque. Hammond.

Group 6. Beethoven : Minuetto and Trio, from Sonata in B flat, Op. 22.
Grovlez : Less Marionnettes. Augener.

Group 9. Hummel : Scherzo.
Moy : Procession. Hammond.

Group 11. Dandrieu : Les Tourbillons.
Kierulf : Romance. Novello.

Group 12. Nares : Gavotte.
Bridge : Rosemary. Winthrop Rogers.

Group 14. Geeh : Praeludium.
Paradies : Giga. Ashdown.

Group 15. Chopin : Nocturne in G minor Op. 15 No. 3.
Lovelock : Waltz. Hammond.

Group 16. Scarlatti : Sonnata in B minor No. 11.
Rosenthal : Impromptu (Four Interludes, No. 4)

Group 18. Sibelius : Staccato, Op. 76, No. 2.
List : Consolation in E. No. 2. Augener.

Group 20. Rameau : Les Tourbillons, Rondo.
Bridge : Valse Capricieuse (Three Sketches, No. 3.) Winthrop Rogers.

Group 21. Butron : Scherzo.
Rowley : Air (from Georgian Suite). Winthrop Rogers.

Group 24. Mendelson : Andante in E minor (Characteristic Pieces, Op. 7, No. 1).
Lovelock : Toccatina. Hammond.

Group 25. Mozrat : Fantasia in D Minor, K 397.
Hurlstone : Rustic Song. Pp. 8, No. 4. Williams.

3. *Scales and Arpeggios* —

Melodic Minor Scales in all keys, in the octave position, one note to each hand, to the extent of four octaves in similar motion, ascending and descending, beginning at the lower part of the keyboard.

Major scales in all keys in contrary motion, beginning with the key-note in each hand, from the centre of the keyboard to the extent of two octaves, outwards and inwards.

The Chromatic Scale beginning from any note, in the octave position, to the extent of four octaves in similar motion.

Arpeggios—

Arpeggios of Major Common Chords in all keys and their inversions to the extent of four octaves.

The scales and Arpeggios may be required with the hands separately or together. They are to be played once only, without break. The notes are to be grouped in fours.

4. *Sight Reading*—

A test of a moderately easy character, in a major or minor key not exceeding four sharps or four flats, in simple or compound time.

5. *Viva Voce*—

A general knowledge of the Form of the Pieces selected will be required. Question will be asked on the work prepared: Intervals, Expression Marks, Modulation.

6. *Ear Test* —

(1) To recognise and name any diatonic interval and the augmented 4th or diminished 5th, within the compass of an octave, played after and above any note within the treble stave.

(2) (*a*) To clap or tap the note-values of a melody not exceeding four bars of 2/4 or 3/4 time, after it has been played twice by the examiner.

(*b*) To beat time (either down-up ; or down-right-up) while the same melody is played again and to continue beating after the music has ceased.

(*c*) To state whether the melody is in duple or triple in time.

(3) To hum or sing the upper or lower of two notes played together a major or minor 6th apart.

Reference books **:—**

Text-Book of Musical knowledge for the Trinity College Local Examinations in Theory of Music—Advanced Junior and Intermediate.

Rudiments of Music—By Stewart Macpherson.

Form in Brief—By William Lovelock.

Novello's Biographies of famous composers.

(*c*) Household Arts

I. Home Making.—

The house and its surroundings :

A. Allocation of the space in the house for essential purposes—for cooking, dining, sleeping, study, children, storages toilet, reception of guests—How to make the best use of a one-room apartment. Flooring, walls and ceiling of the different rooms; furniture.

(*a*) Living and reception rooms—furniture, decorations.

(*b*) Bed-rooms—furniture, mattresses and pillows, linen etc.

(*c*) Dining room—equipment necessary when dining in Indian or Western Style.

(*d*) Kitchen—protection against flies; arrangement for washing up ; cooking vessels and their arrangements.

Types of stoves and ovens ; types of fuel.

(*e*) Store-room—

Arrangement for storing things like provisions, vessels that are not in daily use, etc.

(*f*) The bath room—proper kind of flooring and walls ; lavatory and its sanitation. (8 hours.)

B. Interior decorations—Importance of good taste. Study of the colour chart and colour combinations—use of colour in the home. Choice of suitable pictures for the walls of the different rooms, curtains, cushions and any other articles used for decorating the home. Use of plants and flowers in decorations (5 hrs.)

C. Cleanliness and care of the home—cleanliness of the surroundings. Daily and weekly cleaning of the house—floor, walls, windows, furniture, beds and beddings.

Care of Linen.

Common house-hold pests—mosquitoes, cloth moths, bed bugs, cockroaches, silver fish, white ants, flies, grain and furniture weevils. Cleaning of kitchen utensils, cutlery, crockery and other metal articles like vases, trays, tea pots, etc. (5 hrs.)

II. Income and Expenditure.—

Importance of planned house-hold budget.

Chief budget items. Housing, food, clothing, house-keeping expenses, and personal expenses of the different members of the family. Thrift and methods of saving—Banks, Post Office, Co-operative Societies, Chit-funds and Nidhis, Insurance, investments. (6 hrs.)

III. Personal Hygiene.—

Importance of personal cleanliness ; care of skin, teeth, nails, hair, etc., Clothing in relation to personal appearance—Changing of clothing—day-time and night-wear. Proper foot-wear. (2 hrs.)

IV. First Aid and Home-Nursing.—

Treatment of simple cuts, bleeding from the nose and ear, shocks, artificial respiration, sun-stroke. Poisons—different kinds and treatment ; fractures and how to render first aid in case of fractures and sprains, burns and scalds.

Care of sick—Preparation to be made for a patient in the house. How to disinfect a room in the house. Use of disinfectant a room in the home. (10 hrs.)

V. Child Care.—

Up to the age of three and from the ages of four to nine.

Basic needs of a child—Food, dress, baths, fresh air, playing (games and toys).

Habit—formation.

Minor ailments.

VI. Food and Cookery.—

Food requirements—Carbohydrates, Fats, proteins, minerals, vitamins, water—their common sources.

The basic seven.

Study or common food materials.

Demonstrations of balanced means by the use of the basic seven in terms of servings. (15 hrs.)

Cooking—Methods of Cooking advantages and disadvantages in cooking food.

Choice of essential equipment and utensils ; their cost.

Cleaning of equipment and utensils ; cleaning materials. Flush Sterilization.

Purchasing and storing of food in a home, weights and measures —Cost of common food stuffs. (8 hrs.)

Practicals : (Each practical to be of two hours' duration).

Daily cleaning of a house (one room).

Weekly cleaning of a house—flooring, walls and ceiling, mirrors, glass, pictures, furniture, making of furniture polish at home. Cleaning of kitchen utensils—aluminium, of cutlery and crockery.

(2 practicals).

Laundry—Washing of cotton and silk ; pressing and ironing (1 practical).

First aid and Home nursing.

Preparing the surrounding of a patient.

Bed-making and changing sheets for a patient in bed ; giving sponge baths.

Use of clinical thermometer. (One practical).

(The practical work in connection with first-aid may be done along with the lectures).

Study of a few plants of houses ; arrangement of furniture in room.

Study of colour—Combinations in pictures.

Colour Schemes in dress.

Arranging flower-vases. (1 practical).

Cooking—Invalid Cookery—Kanjees (broken rice, arrowroot, Sago, Barley water, Whey, Soups and custards.)

Beverages—Coffee, tea, fruit-juices. (1 Practical).

Tiffin. Uppuma and Chutney.

Puri and potatoes. (1 Practical).

Coconut toffee, groundnut toffee
Or
Any other sweet. (1 Practical).

Cooking of a simple balanced meal. (1 Practical).

Preparing the dining-room for meals
Indian style
Western style. (1 Practical)

(5) (*i*) Logic

The following Syllabus indicates the scope of the subject to be covered in about 75 hours. ***An elementary and outline treatment alone is intended.***

1. Definition of Logic and its relation to Psychology.

2. The Syllogism and its parts.

3. The proposition and its Parts. Kinds of Propositions : Affirmative and Negative ; Universal and Particular ; Categorical, Hypothetical and Disjunctive.

4. Square of Opposition ; distribution of terms in a proposition obversion and conversion of proposition.

5. Categorical, hypothetical and disjunctive syllogisms; ***structure and general rules only.***

6. Problem of Induction.

7. Postulates of Induction.

8. Stages in the Inductive process.

9. Observation, Experiment and Analogy

10. Enumeration and Scientific Analysis.

11. Hypothesis and Explanation.

12. Identification and testing of arguments, deductive and inductive ***relating only to the topics listed above.***

Books of reference : Relevant portions in—

Creighton and Smart : An Introductory Text-book of Logic.

Latta and Macbeath : The Elements of Logic.

T. M. P. Mahadevan : Fundamentals of Logic.

R. Ramanujachari : Handbook of Logic.

(*ii*) Psychology

Elements of General Psychology.

1. *What Psychology is* :

   Aims, Methods, Relation to other Sciences.

2. *Brain and Nervous System* :

   Stimulus-Response, Reflex action, Brain as a conditioning agent.

3. *Sensation, Attention and Perception* :

   Nature and characteristics of Sense Organs (Visual, Auditory, Gustatory, Olfactory, Tactual, Kinesthetic, Static and Organic) Factors governing Attention and Perception and Illusions.

4. *Intelligence :*

   What is Intelligence. Methods of measuring Intelligence. Use of Intelligence Tests.

5. *Learning and Memory* :

   Animal and Human Learning : Kinds of Learning—Trial and Error, Observation, Insight, Conditioned Learning ; Nature of Memory—Learning, Retention, Recall and Recognition : Nature of Forgetting ; Improvement of Memory.

6. *Imagination and Thinking* :

   What is Imagination ? Day-dreams, Dreams, Hallucinations, Nature of the Unconscious, Concept formation, Kinds of Images (memory image, after image, eidetic image).

7. *Feeling and Emotion* :

   Difference between feeling and emotion ; Physical aspects of emotion—endocrine glands, autonomic nervous system. General characteristics of Fear and Rage.

8. *Personality :*

   Nature of Personality ; Multiple Personality.

Books of reference :—

1. S. P. Adinarayan, " The Human Mind ", Hutchinson University Library, Hutchinsons, London.
2. Rex and Margaret Knight, " A Modern Introduction to Psychology ", University Tutorial Press, London.

The following visual aids and demonstration are to be given in conjunction with the above Syllabus :—

1. Brain and Nervous System : Charts, Models and Specimens of the brain and nervous systems, demonstration or characteristics or nerve fibre with Littie's Steel nerve.
2. Charts and Models of Sense Organs—Ear, Eye, Nose, Skin, Tongue and Larynx.
3. Tachistoscope for illustrating span of apprehension.
4. Charts for demonstrating Muller-Lyer illusion, Vertical-Horizontal illusion, Ambiguous Staircase, Cube; Fluctuation of attention—Figure-ground ; Reversible Configuration.
5. Stereoscope for demonstrating depth perception.
6. Photographs of morons, idiots and Cretins.
7. Tests of Intelligence Group Verbal Test ; Performance Tests ; Alexander's Pass-along Test, Cube Construction Test, Koh's Block Design Tests, Goddard Form-board Test.
8. Demonstration of simple T-mazes, finger and slot mazes, wire puzzles. Demonstration of reflex-pupillary, winking and patellar. Demonstration of immediate memory with digits and non-sense syllabus. Demonstration of recognition.
9. Demonstration of Whipple's Ink Blots ; After images of colours.

(6) An advanced course in a language

(*i*) English

One play of Shakespeare

One non-detailed text

There will be one paper of three hours' duration.

(*ii*) Tamil

Scheme of studies for those who study Tamil under Part II (Advanced Language).

Poetry :

300 lines of Classical Poetry and 300 lines of Modern Poetry.

There will be two Text-books for Detailed Study of which one may deal with Literary Criticism or History of Tamil Literature. There will be no Composition and Translation.

Scheme of studies for those who study another language under Part II (Third Language)

***Poetry*:**

500 lines of Modern Poetry.

***Prose*:**

Two Prose Works for Detailed Study.

(*iii*) Telugu

Scheme of studies for those who study Telugu under Part II (Advanced Language).

1. Old (a Classical) Poetry about 500 to 550 lines.
2. Modern Poetry about 300 lines.
3. Drama—A Short Play.
4. Prose:—Detailed: A short look on a literary or scientific subject.
5. Grammar, Prosody and Poetics—the same as for Part II with the addition of the main features of the most important Consonantal and Visarga Sandhis in Sanskrit and the fundamental principles of Syntax in Telugu; Ten main varieties of Yati; Utpreksha and Arthantaranyasa.

Scheme of studies for those who study another language under Part II (Third Language).

The same as for Advanced Language deleting the more difficult part of Old Poetry and item 5 relating to Grammar, etc.

(*iv*) Kannada

Scheme of studies for those who study Kannada under Part II (Advanced Language).

***Poetry*:**

800 lines of Old Poetry from two different Poets.

***Drama*:**

One Drama of about five acts (not modern).

***Grammar*:**

Applied Grammar, Prosody and Poetics with reference to detailed Texts.

Scheme of studies for those who study another language under Part II (Third Language).

***Poetry*:**

About 400 lines of Mediaeval poetry and 400 lines of Modern poetry.

Prose :

Two Prose Works for detailed study.

(*v*) Malayalam

Scheme of studies for those who study Malayalam under Part II (Advanced Language).

Drama :

One classical and one modern drama to be prescribed.

Poetry .

About 100 lines of ancient poetry, 400 lines of mediaeval and one modern Khandakavya to be prescribed.

Scheme of studies for those who study Malayalam under Part II (Third Language).

The same as for Part I omitting poetical selections from Ancient and Mediaeval Literature.

(*vi*) Marathi

Scheme of studies for those who study Marathi under Part II (Advanced Language).

(i) (*a*) A modern 'Khanda Kavya' and 100 lines of ancient poetry.

(*b*) Study of the following Alankaras and Vrittas :—

Alankaras : Anuprasa, Yamak, Upama, Utpreksha, Roopak, Apanhuti, Vyatirekha, Drishtanta, Atishyokti, Arthantaranyas.

Vrittas : Indravajna, Bhujangaprayar, Drutavilambita, Vasantatilaka, Prithwi, Shikharini, Malini, Shardulvikridita, Arya, Dindi.

(ii) Drama

Scheme of studies for those who study another language under Part II (Third Language.)

(i) Selection from Poetry and Modern Prose.

(ii) A collection of short stories or Biographiers.

(*vii*) Hindi

Scheme of studies for those who study Hindi under Part II (Advanced Language).

(i) (*a*) A modern 'Khanda Kavya' and 100 lines of Ancient Poetry.

(b) Study of the following Alankaras and Chandas:—

Alankaras: Anuptas; Shlesh; Yamak; Upama; Utpreksha; Roopak; Atishayokti and Ananvay.

Chand: Doha; Choupayee; Soratha; Harigeetika; Rola; Indravajra; Upendravajra; Vanshasth: Mandakranta; Malini.

(ii) A Drama.

Scheme of studies for those who study another language under Part II (Third Language).

(i) Selections from Poetry and Modern Prose.

(ii) A collection of short stories or Biographies.

(*viii*) Sanskrit

Scheme of studies for those who study Sanskrit under Part II (Advanced Language).

One Paper :

(1) One Drama.

(2) About 100 Subhashita Verses like the Nitisataka of Bhartruhari.

This paper may contain questions on Grammar but not Translation.

Scheme of studies for those who study another language under Part II (Third Language).

A prescribed text-book being the same as under Part II with the Poetical Selections under Part II reduced to half, i.e., about 100 verses. This paper shall include questions on Translation and Grammar based on the Texts.

(*ix*) Latin

Scheme of studies for those who study Latin under Part II (Advanced Language).

500 lines of Ovid.

Scheme of studies for those who study another language under Part II (Third Language).

40 Chapters of Caesar.

Grammar is to be studied throughout but no Text-book prescribed.

The following are recommended for Reference :—

The Tutorial Latin Grammar (University Tutorial Press, London).

Matriculation Latin Course (Tutorial Course).

(*x*) **French**

Scheme of studies for those who study French under Part II (Advanced language).

One Prose book of about 80 pages.

200 lines of Poetry.

Scheme of studies for those who study another language under Part II (Third language).

One book of easy French or about 80 pages.

Grammar is to be studied throughout.

No Text is prescribed but the following are recommended for reference :—

Bertenshaw's French Grammar (Longmans).

Tutorial French Grammar (University Tutorial Press, London)

The Matriculation French Course (University Tutorial Press).

(*xi*) **Arabic**

(Advanced Language).

One Paper :—Questions on the Text-books prescribed including Grammar.

(Third Language).

One Paper :—Questions on the Text-books prescribed and one Passage for Translation. (Seen Passage).

(*xii*) **Persian**

(Advanced Language).

One Paper :—Questions on the Text-books prescribed including Grammar.

(Third Language).

One Paper :—Questions on the Text-books prescribed and one Passage for Translation. (Seen Passage).

(*xiii*) **Urdu**

(*Advanced Language*).

One Paper :—Questions on the Text-books prescribed including questions on Grammar.

(*Third Language*).

One Paper :—Questions on the Text-books prescribed including Grammar.

(*xiv*) **Syriac**

Scheme of studies for those who study Syriac under Part II
(*Advanced Language*).

One Paper :—Questions on the Text-books prescribed, including grammar and translation (seen and unseen passages) from Syriac into English and vice versa.

Prose : about 20 pages.

Poetry : about 160 lines.

Scheme of studies for those who study another language under Part II
(*Third Language*).

The prescribed text-books be the same as those under Part II Syriac.

This paper shall include questions on grammar based on text-books and questions for translation (seen and unseen passages.)

Text-Books for Pre-University Examination, 1959.

ENGLISH

PART I

***Prose*:**

Choice Reading—Edited by S. Narasimhan (National Publishing House) (omitting Nos. 14, 17, 18, 21, 22 and 23).

Poetry—The following from "The Heroic Theme in Verse" by P. K. Venkata Rao:—

(1) Iphigeneia and Agamemnon (Landor).

(2) John Burns of Gettysburg (Bret-Harte).

(3) Ulysses (Tennyson).

(4) Rugby Chapel (Arnold).

(5) The Haystack in the Floods (Morris).

(6) Thou Hast given us to Live (Tagore).

Non-detailed text :

(1) The Adventures of Tom Sawyer, simplified by E. G. Hoggett (Longmans), Longman's Simplified English Series.

(2) Dr. Sechweitzer by Nina Langley (Harrap).

PART III

(*Advanced Language*).

Shakespeare—The Merchant of Venice.

Non-detailed Text :

King John's Treasure—R. C. Sheriff—P.T.I. Book Depot.

TAMIL

PART II, 1959.

Poetical selections :

(1) Purananuru (Stanzas 191 and 192).

(2) Tirukkural (Chapters 8, 9 and 22).

(3) Silappadhikaram (Five Venbas—Three Venbas at the end of Kathai XX, one at the end of Kathai XXI and one at the end of Kathai XXIII).

(4) Kalingathupparani (40 lines).

(5) Periyapuranam (Illayan Kudimaran Nayanar Puranam).

(6) Kambaramayanam (Vali Vathaip Patalam—Stanzas 119 to 153).

(7) Nala Venba (Kali Neengu Kandam—60 lines).

(8) Kurralak Kuravanji (Thala Mahimai Kural—Stanzas 57 to 60).

(9) Bharathiyar—Porumaiyin Perumai (stanzas 11 to 18) and Kadavul Enge Irukkirar (Government Publication).

(10) Manonmaniyam (Sivakami Sarithai—140 lines).

Prose detailed—

(1) Sangakala Chanrorkal by N. Sanjeevi, Lecturer in Tamil, Pachaiyappa's College, Conjeevaram.

(2) Sangakala Tamilar Vazhvu by L. R. Kr. Ramanathan Chettiyar (published by Vellayan Pathippuk Kalagam, Kandanoor).

Prose Non-detailed :

Sir Tirutham or Ilamai Virunthu by Thiru Vi. Ka. (published by Sadhu Press, Royapettah, Madras-14).

FOR PRE-UNIVERSITY EXAMINATION, 1959

PART III

(*Advanced Language*).

Poetical Selections :

(1) Kambaramayanam (Kumbakarnan Vathippatalam—80 stanzas).

(2) Thirukkural (Chapters 70 to 73).

(3) Silappadhikaram (Adaikkalak Kathai—100 lines).

(4) Mukkudal Pallu (stanzas 19 to 26 and 34 to 35).

Prose detailed :

Thiru Arutpa, Book II, Vacanappakuthi by A. Balakrishnan Pillai, 'Arutpavalakam', No. 4, Tyagarajapuram, Mylapore, Madras.

Manumurai Kanda Vachakam.

Jivakarunya Olukkam, pages 1 to 88.

(*Third Language*)

1959.

Poetry:

1. Kannan Pattu by Bharathiar (60 lines).
2. Kombi Virutham by V. P. Subramania Mudaliar (60 Stanzas)

Prose:

1. Tamil Kathai by S. K. Ganapathi Iyer (Brahmajoti Noolakam, Mylapore, Madras).
2. Manonmaniyam—A Drama by M. Shanmugasundaram, No. 21, Pachaiyappa's Hostel Road, Chetput, Madras.

TELUGU

PART II, 1959.

Poetry :

(1) Nannaya : Dharmarajasuya Yagemi.

(2) Pillamarri Pinavirabhadra Kavi : Jaimini Bharatamu (Canto VIII) ; Chandrahasa Caritamu (from selections published by the University of Madras—Pre-University Examination, 1957).

Prose (detailed) :

Vedam Venkataraya Sastry : The story of Akkanna and Madanna—Vedam Venkataraya Sastry and Brothers, 1949, No. 4, Mallikeswarar Koil South Lane, Linghi Chetti Street, George Town, Madras-1.

Prose (non-detailed) :

Vanama Venkataramana Gupta Rana Pratapudu, publishers—Rayalu and Company—Branch: 32, Narayana Mudali Street, Madras-1. (1953 reprinted 1956).

PART III

(*Advanced Language*).

1959.

Prose :

1. Vanguri Narasundarai: Mahabhaktulu—Ramadasu and Tyagaraju (1955)—Kamalakutir, Narasapuram, West Godavari.

Drama :

2. Veturi Prabhakara Sastry: Naganandamu.

THIRD LANGUAGE, 1959.

(Not prescribed).

KANNADA

PART II, 1959.

Old Poetry :

The following selections edited by the University—

Yasodhara Charities :

(*a*) 42 stanzas from Avatara I and 51 stanzas from Avatara II. In all 93 stanzas—372 lines.

(*b*) Virata Parva—62 to 108 stanzas—47 stanzas—282 lines.

(*c*) Nitimanjari—Part I—30 stanzas—120 lines.

Modern Poetry :

Kshatra Darsana by Kinnigoli, A. G. (Yugapurusha Prabatanalaya, Kinnigolic), Chapters 3, 4, 5—400 lines (pages 14-36).

Prose :

Mahabharatada Sutradhara by C. R. Srinivasa Ayyar (T. S. Venkannaya Smaraka Series, Mysore).

Non-detailed study :

Aradhana by B. Deva Rao, Vasantha Malike, Mangalore-3.

PART III

(*Advanced Language*).

1959.

Poetry :

(*a*) Maha Sweta Vrittanta (University of Mysore)—125 stanzas with the intervening prose.

(*b*) Adi Parva Sangraha, Chapters 9 and 10—52 stanzas—(T. S. Venkannaya Smaraka Series, Mysore).

Drama :

Malavikagnimitra by Motaganaballi Subrahmanya Shastry (Karnata Sangha, Central College, Bangalore).

(*Third Language.*)

1959.

Poetry :

(*a*) Virata Parva (University Kannada Selections). Stanzas 62-108 (in all 282 lines).

(*b*) Kshatra darshana by A. G. Kinnigoli (Chapters 3, 4 and 5—in all 400 lines).

Prose :

(*a*) Mahabharatada Sutradhara by C. R. Srinivasa Ayyangar.

(*b*) Aradhana by B. Deva Rao (Vasantha Malike, Mangalore-3).

MALAYALAM

PART II, 1959.

Paper I.

Text-books, Grammar, etc.

Poetry :

(1) Selections from Classical and Mediaeval Poetry (edited by the University).

(2) Veenapoovu by Kumaran Assan, published by Sarada Book Depot, Alwaye.

(3) Idappallikritikal (Thiranjeduthava) by Edappl Raghavan Pillai, published by the Mangalodayam Limited, Trichur.

Prose :

Valmikiyute Lokathil by I. C. Chacko, published by Jayabharatam, Thevara, Ernakulam.

Paper II.

Non-detailed :

Nammute Sahityakaranmar—Part III by Pallippat Kunhikrishnan. Published by National Book Stall, Kottayam.

For reference :

Bhashasahyam by Habel G. Varghese, published by Orient Longman's, Madras-2.

PART III

(*Advanced Language*).

1959.

Drama :

1. Karnabharam by Cheruliyil Kunjunni Nambeesan, P.O. Thiruvegappuram (via) Pattambi.
2. Dheeravratham by Attoor Krishna Pisharoty, Srithilakam, Puthole, Trichur P.O.

Poetry :

1. Kannassa Ramayanam—Sundara Kandam, first 100 lines (Any Press).
2. Mayura Sandhesham—Poorva Bhagom by Kerala Varma Valiya Koil Thampuran (Any edition).
3. Chandala Bhikshuki by Kumaran Assan, Sarada Book Depot, Alwaye.

(*Third Language*).

(All books prescribed under Part II for the year omitting No. I under Poetry.)

MARATHI

PART II, 1959

Paper I.

For detailed study :

Poetry :

Kavya Vilasa Part I—edited by V. R. Nerurkar and D. P. Karkhanis (Pp. 1-80.)

Prose :—

Nibandha Parimal—edited by Shri H. N. Nene, published by Vidarbha Sahitya Sangha, Nagpur (All except essays Nos. 4, 5, 6, 7, 12, 14 & 15).

Grammar :—

Navin Balbhodha Marathi Vyakarana by R. B. Joshi, Book IV, revised by R. S. Dikshit, B.A. (for reference only).

Paper II.

Panch Kathakar—edited by Shri V. S. Khandekar (All kathas except Nos. 1, 4, 8, 9 & 13.)

PART III—GROUP B.

(*Advanced Language*)

1959.

For detailed study :

Poetry : (i) (*a*) Vanavasi Phool by N. V. Thilak.

(*b*) Sloka Kekavali (1-25 stanzas only) by Moropant.

(ii) *Drama*—Kichaka Vadha by Khadilkar.

Books recommended for reference—

1. Alankara Chandrika by G. M. Gore.
2. Vrittadarpan by P. B. Godbole.

(*Third Language*)

1959.

For detailed study :

(*a*) Kavyavilas Part I, edited by V. R. Nerurkar & D. P. Kharkanis—Publisher: K. B. Dhawale, Bombay (Pp. 23-80 only.)

(*b*) Nibandha Parimal—edited by N. N. Nene, published by Vidarbha Sahitya Sangha, Nagpur (Essays except 4, 5, 6, 7, 12, 14 & 15.)

HINDI

PART II, 1959.

Poetry I—Detailed Study:

Poetry—Poetry Selections in Hindi for Pre-University—Published by the University.

Prose :

Gadya Sourabh—Part I (D. B. Hindi Prachar Sabha, Madras), excluding lessons 6, 9, 11, 13 and 'Parisistha'.

Grammar : (For reference only).

Hindi Grammar by Apte and Sastri, D. B. H. P. Sabha, Madras.

Paper II—Nav Kahaniyan (D. B. Hindi Prachar Sabha, Madras) excluding lessons 4 and 6.

PART III—GROUP B

(*Advanced Language*)

1959.

Detailed Study :

Poetry :

1. Rang Me Bhang by M. S. Gupta (Sahitya Sadan Chirganj, Jhansi).
2. Padya Pravesika (D. B. Hindi Prachar Sabha), first 10 Dohas, each of the first five poets in Part III.

Drama—" Swapna Bhang " by Hari Krishna Premi.

For reference only :

'Kavya Pradeep' by Ram Bahori Sukla (Hindi Bhavan, Allahabad).

(*Third Language*)

1959.

Detailed Study :

Poetry :

Hindi Padyavali by A. Chandrahasan (The Bharat Stores, Broadway, Ernakulam), excluding lessons 1, 2, 3, 4, 13 and 14.

Prose :

Hindi Gadya Ratna by P. R. S. Shastri (Hindi Sahitya Seva Mandir, Chickamavalli, Bangalore), lessons 1 to 8 only.

SANSKRIT

PART II, 1959.

Poetry :

Raghuvamsa—Cantos 12 and 13.

Prose :

Bharatasangraha of Mahamahopadhyaya.

Lakshmana Suri.

Vana and Virata Parvas only.

Copies can be had of : Sri T. V. Balakrishnan, Advocate, " Sri Vidya Vilas ", Alwarpet, Madras-18.

PART III.

(*Advanced Language*)

1959.

1. Drama—Bhasa's Pratimanataka.
2. Bhartrhari's Nitisataka (Nirnaya Sagar Press, Bombay).

(*Third Language*)

1959.

Same as under Part II, omitting Raghuvamsa—Canto 13.

ARABIC

PART II, 1959.

Prose and Poetry.—Al-Qir' at-ur-Rasheeda, Vol. IV (First half only).

Grammar.—An-Nahwul Wadeh (Ibtadi), Vols. I and II (topics covered by and all the exercises contained therein).

PART III

(*Advanced Language*).

1959.

Prose and Poetry.—Majamul Adab, Volume I (first 60 pages).

Grammar—An-Nahwul Wadeh (Ibtadi), Volume III (copies covered by and all the exercises contained therein).

(*Third Language*).

Prose and Poetry.—Al-Quiratul-Faridah, Part I (First 20 lessons).

Grammar.—An-Nahwul Wadeh, Volume I (Topics covered by and all the exercises contained therein.)

PERSIAN

PART II, 1959.

Prose.—Ganjeena-i-Adab (Selections from Gulestan only).

Poetry.—Ganjeena-i-Adab (Selections from Boostan, first chapter only).

Grammar.—Misbahul Qawaid—by Jafari.

PART III

(Advanced Language)

1959

Prose.—Ganjeena-i-Adab (Selections from Alf-o-Lailah only)

Poetry.—Ganjeena-i-Adab (Selections from Ghaziyat-i-Sa'dt only)

Grammar.—Misbahul Qawaid—by Jafari.

PART III

(Third Language)

1959.

Prose and Poetry.—Khazinai Adab—by Abdul Alleem Zaina-bi (lessons 90 to 124).

Grammar.—Ad'madan-Namah Seh Lafzi.

URDU

PART II, 1959.

Prose.—Dhikr-o-Fikr, Vol. I, Part II.
Poetry.—Rang-o-Ahang, Vol. I, Part II.
Grammar.—Asas-I-Urdu by Jafari.
Non-Detailed.—Farida by Khan Mahboob Tarzi.

PART III

(Advanced Language)

1959.

Prose.—Dhikr-o-Fikr, Vol. I, Part III.

Poetry.—Rang-o-Aghanh, Vol. I, Part III.

Grammar.—Asas-i-Urdu by Jafari.

(Third Language).

Prose.—Dhikr-o-Fikr, Vol. I, Part I.

Poetry.—Rang-o-Ahang, Vol. I, Part I.

Grammar.—Asas-I-Urdu by Jafari.

SYRIAC

PART II, 1959.

Prose—

(1) Readings in Syriac Prose for Intermediate classes (St. Joseph's Press, Mannanam): Lessons VII to XIII (both included).

(2) Arayathinal, Aramai Grammar, exercises 1 to 10 (both included).

Poetry.—Readings in Syriac Poetry, for the Intermediate Classes (St. Joseph's Press, Mannanam): Lessons IX to XIV (both included)

Grammar.—General Principles of grammar.
Appropriate topics from—

(1) Syriac Grammar by Fr. Gabriel, T.O.C.D.—revised and abridged by Fr. Thomas William, T.O.C.D. (St. Joseph's Press, Mannanam)

(2) Aramaic Grammar—by Rev. Thomas Arayathinal (St. Joseph's Press, Mannanam)

PART III

(*Advanced Language*)

1959

Prose—

(1) Readings in Syriac Prose for the Intermediate Classes (St. Joseph's Press, Mannanam), the whole.

(2) Arayathinal, Aramaic Grammar: Exercises 1 to 20 (both included)

Poetry.—Readings in Syriac Poetry for the Intermediate classes (St. Joseph's Press, Mannanam), the whole.

Grammar.—The same as those under Part II.

(*Third Language*)

The same as those under Part II.

HEBREW

PART II, 1959.

Prose—Genesis : Chapter XII to XVIII (both included)

Poetry.—Psalms XIII to XXII (both included)

Grammar.—General Principles of Grammar. Appropriate topics from Students' Hebrew Grammar—by Rev. Michael Adler (David Nutt, London).

PART III

(*Advanced Language*)

1959.

Prose.—Genesis: Chapters XII to XXIV (both included)

Poetry.—Psalms XIII to XXXI (both included)

Grammar.—The same as those under Part II.

(*Third Language*)

The same as those under Part II.

LATIN

PART II, 1959.

Caesar : De bello Gallico, Book IV.

PART III (*Advanced Language*), 1959.

Ovid : Metamorphoses, Book I, lines 500 to the end.

(*Third Language*)

Caesar : De bello Gallico, Book I, Chapter 41 to the end.

FRENCH

PART II, 1959.

Mouveaux Contes et receits—Edited by Dyke and Cure Harrap.

PART III (*Advanced Language*), 1959.

Le Tresor de M Toupie—Edited by Milne, O.U.P.

A New Book of French Verse—Cooper, Numbers 20 to 36.

(*Third Language*)

Les belles histories—by C. Roe Longmans.

GERMAN

PART II, 1959.

(*a*) Sprechem Sie Deutsch by Oscar Burhkard George G. Harrap, O.U.P.

(*b*) Hie Und Da by N. R. Ewing, Orient Longmans.

(*c*) German Poetry for Students by A. Watson Bain—Macmillan (Nos. 30, 33, 43, 46, 53, 59, 67, 75, 88 and 107)

PART III (*Advanced Language*), 1959.

(*a*) Die Juwelen Und Andere Geschichten by W. W. Dutton-Harrap, O.U.P.

(*b*) Die Abenteuer Von Paula Und Peter by Else Johannsen and A.M. Wagner, University of London Press, O.U.P. (Nos. 17, 22, 34, 41 and 62).

(*b*) German Poetry for Students by A. Watson Bain, Macmillan.

(*Third Language*)

Allerler Fabeln by Pin Hagboldt, Books 1 and 2 (Heath)

Text-Books for Pre-University Examination, 1960.

ENGLISH.

PART I.

Prose:

Choice Reading—Edited by S. Narasimhan (National Publishing House) (Omitting Nos. 14, 17, 18, 21, 22 & 23.)

Poetry:

The following from An Anthology of Longer Poems—Moles and Moon (Longmans).

Resolution and Independence (Wordsworth)

Prisoner of Chillon (Byron)

Sohrab and Rustum (Mathew Arnold) (from 1,689 to 1,794).

Non-detailed Reading:

(1) Kenilworth—Margery Green—Stories to remember—Senior Series (Macmillan).

(2) The story of Tagore—Marjorie Sykes—Longmans.

PART III.

Shakespeare—The Merchant of Venice.

Non-Detailed Reading:

Beau Geste—P. C. Wren, O. U. P.

TAMIL.

PART II, 1960.

Poetical Selection:

1. Purananuru (Stanzas 72, 74, 77 and 101).
2. Tirukkural (Ulavu, Sanranmai, Alvinaiyutammai and Sirrinamceramai).
3. Silappadhikaram (Katukan Kathai).
4. Periyapuranam (Apputhi Atikal Puranam).
5. Kambaramayanam (Vali Vathaip Patalam—Stanzas 110-153)
6. Nala Venba (Kali Neenku Kandam—60 lines).
7. Kurralak Kuravanchi (Tale Mahimai Kural—Stanzas 57-60).
8. Bharathiyar—Porumaiyin Perumai (Stanzas 11 to 18), Govt. Publication.
9. Manonmaniyam (Sivakami Saritai—140 lines).

Prose Detailed:

1. Karantaik Katturaikkovai omitting Tiruviruttam (Karantai-t-Tamizh Sangham, Tanjore).
2. Ilvazkkai (pp. 1-136 only) by Dr. M. Rajamanikkam (36, Manjanakara Street, Madurai).

Non-detailed:

Karikalvalavan by V. Narasimhan, M.A. (Palaniappa Bros., Madras).

PART III (*Advanced Language*), 1960.

Poetical Selections:

1. Kambaramayanam—Kaiyataippatalam.
2. Tirukkural (Chapters 64, 65, 66 & 67).
3. Silappadhikaram—Natukan Kathai.

Prose detailed:

Pulathurai Mutriya Puvaiyar by Siva Parvathi Ammaiyar (C/o. N. M. Govindaswamy Nadar, Nattarakam, Terukupperunthra, Tanjore).

PART III

(*Third Language*)

(Will be prescribed later).

TELUGU

PART II, 1960

Poetry:

1. Dharmarajunirajasuyayagamu by Nannaya.
2. Chandrahasa Charitra from Pillalamarri Pina Veerabhadrakavi Jaimini Bharatamu from Selections No. 1 and No. 9 published by the University of Madras.

Detailed Prose:

Chitraratnakaramu by Sri G. Ramamurti. V. Ramaswamy Sastrulu and Sons, Madras.

Non-detailed:

Paschattapamu by Dr. N. Venkataramanayya, Vidyasagar Corporation, Madras.

PART III (*Advanced Language*), 1960.

Prose:

Mahabhaktulu by Vanguri Narasimha Rao, Kamalakutir, Narasapuram, West Godavari Dt.

Drama:

Naganandamu by V. Prabhakara Sastry.

(*Third Language*).

(Not Prescribed)

KANNADA

PART II, 1960.

Old Poetry :

The following selections edited by the University:—

(*a*) Yasodhara Charite—42 Stanzas from avatara I and 51 stanzas from avatara II. In all 93 stanzas—372 lines.

(*b*) Nitimanjari—30 stanzas—120 lines.

(*c*) Virata Parva—47 stanzas—282 lines.

Modern Poetry :

Kshetra Darshana by Kinnigoli A.G.—Chapters 3, 4 & 5 (400 lines): Yugapurusha Prakatanalaya, Kinnigoli.

Detailed Prose :

Bharatada Aivaru Mahaniyaru by V. Si. (K. V. Govinda Shetty & Sons), Kunnigalu, Mysore State.

Non-detailed Study :

Aradhana by B. Deva Rao (Vasantha Malike, Mangalore).

PART III (*Advanced Language*), 1960

Poetry :

(*a*) Maha Sweta Vrittanta (University of Mysore)—125 stanzas with the intervening prose.

(*b*) Adi Parva Sangraha, Chapters 9 and 10—Stanzas—(T. S. Venkannaya—Smaraka Series, Mysore).

Drama :

Malavikagnimitra by Motaganahalli Subrahamanya Shastry (Karnata Sangha, Central College, Bangalore).

PART III

(*Third Language*)

Poetry:

(*a*) Virata Parva (University Kannada Selections). Stanzas 62-108 (in all 282 lines).

(*b*) Kshetra darshana by A. G. Kinnigoli (Chapters 3, 4 and 5—in all 400 lines).

Prose:

(*a*) Mahabharatada Sutradhara by C. R. Srinivasa Ayyangar.

(*b*) Aradhana by B. Deva Rao (Vasantha Malike, Mangalore-3).

MALAYALAM

PART II, 1960.

Paper 1. Text-Books, Grammar, etc. Poetry.—(1) Selections from classical and Mediaeval Poetry. Published by the University of Madras.

2. Acchanum Makalum by Vallathol Narayana Menon. Pub: Vallathol Granthalaya, Cheruthuruthi, Kerala.

3. Edappillikritikal (Teranjeduthava—Selections 1 to 12) by Edappilli Ragavan Pillay. Pub: Mangalodayam Ltd., Trichur.

Prose :

Jeevitachintakal by K. P. Kesava Menon. Pub: National Book Stall, Kottayam.

Non-detailed text :

Londonil by Dr. K. Kunjunni Raja. Pub: National Book Stall, Kottayam.

For Reference :

Bhashasahyam: Habel G. Verghese.

PART III (*Advanced Language*), 1960.

Drama :

1. Karnabharam by Cheruliyil Kunjunni Nambeesan, P.O. Thiruvengappuram (Via) Pattambi.
2. Dheeravratham by Attoor Krishna Pisharoty, Srithilakam, Puthole, Trichur.

Poetry :

1. Kannassa Ramayanam—Sundara Kandam, first 100 lines (Any Press).
2. Mayura Sandesham—Poorva Bhagom by Kerala Varma Valiya Koil Thampuran.
3. Chandala Bhikshuki by Kumaran Assan, Sarada Book Depot, Alwaye.

HINDI

PART II, 1960.

Poetry :

University Poetry Selection—Sections A and B.

Prose :

'Hindi Madhuri'—Part I—Excluding lessons 6, 9 and 11 (D. B. Hindi Prachar Sabha).

Non-Detailed :

'Chuni Hui Kahaniyan' (Only Nos. 1, 2, 3, 7, 8, 9 and 12.

PART III (*Advanced Language*), 1960.

Poetry :

(i) Section C of University Poetry Selections.
(ii) 'Panchavati'—M. S. Gupta.

Drama :

'Nav Prabhat'—Vishnu Prabhakar.

For reference only :

'Kavya Pradeep'—Ram Bahori Sukla.

PART, III

(*Third Language*)

(Will be prescribed later.)

SANSKRIT

PART II, 1960

Poetry :

Raghuvamsa—Cantos 12 and 13.

Prose :

Bharatasangraha of Mahamahopadyaya Lakshmana Suri Adiparvan.

Copies can be had of :

Sri T. V. Balakrishnan, Advocate, "Sri Vidya Vilas", Alwarpet, Madras-18.

PART III (*Advanced Language*), 1960.

1. Drama—Bhasa's Pratimanataka.
2. Batruhari's Nitisataka (Nirnaya Sagar Press, Bombay).

(*Third Language*).

Same as under PART II, omitting Raghuvamsa, Canto 13.

ARABIC

PART II, 1960

Prose and Poetry :

Al-Qir'at-ur-Rasheeda, Vol. IV (First half only).

Grammar :

An-Nahwul Wadeh (Ibtadi), Vols. I and II (topics covered by and all the exercises contained therein).

PART III (*Advanced Language*), 1960

Prose and Poetry :

Majamul Adab, Volume I (First 60 pages).

Grammar :

An-Nahwul Wadeh (Ibtadi), Volume III (Copies covered by and all the exercises contained therein).

(*Third Language*)

Prose and Poetry:

Al-Qiratul-Faridah, Part I (First 20 lessons)

Grammar :

An-Nahwul Wadeh, Volume I (Topics covered by and all the exercises contained therein).

PERSIAN

PART II, 1960.

Prose :

Ganjeena-i-Adab (Selections from Gulestan only)

Poetry :

Ganjeena-i-Adab (Selections from Boostan, first chapter only)

Grammar :

Misbahul Qawaid by Jafari.

PART III (*Advanced Language*), 1960.

Prose :

Ganjeena-i-Adab (Selections from Alf-o-Lailah only).

Poetry :

Ganjeena-i-Adab (Selections from Ghazliyat-i-Sadi only).

Grammar :

Misbahul Qawaid by Jafari.

(*Third Language*)

Prose and Poetry :

Khazina-i Adab by Abdul Aleem Zainabi (lessons 90 to 124).

Grammar :

Ad'madan-Namah Seh Lafzi.

URDU

PART II, 1960.

***Prose* :**

Dhikr-o-Fikr, Vol. I, Part II.

***Poetry* :**

Rang-o-Ahang, Vol. I, Part II.

***Grammar* :**

Asas-i-Urdu by Jafari.

***Non-detailed* :**

Farida by Khan Mahboob Tarzi.

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PART III (*Advanced Language*)

1960.

Prose :

Dhikr-o-Fikr, Vol. I, Part III.

Poetry :

Rang-o-Ahang, Vol. I, Part III.

Grammar :

Asas-i-Urdu by Jafari.

(*Third Language*)

Prose :

Dhikr-o-Fikr, Vol. I, Part I.

Poetry :

Rang-o-Ahang, Vol. I, Part I.

Grammar :

Asas-i-Urdu by Jafari.

FRENCH

PART II (1960)

Nouveaus Contes et recits. Edited by Dyke and Cure Harrap.

PART III (*Advanced Language*), 1960

Maraouna du Bambassou. By Rene Guillet. O.U.P.

A New Book of French Verse by Cooper, Nos. 1 to 36.

(*Third Language*)

Les belles histoires by C. Roe. Longmans.

PART III

(*Third Language*)—1960.

All books prescribed under PART II, omitting No. 1 under Poetry.

MARATHI

PART II, 1960

Paper I—For detailed study :

Poetry :

Kavya Vilasa Part I, edited by V. R. Nerurkar and D.P. Karkhanis (pp. 1-80).

Prose :

Nibandha Parimal, edited by Shri H. N. Nene. Published by Vidarba Sahitya Sangha, Nagpur (all except essays nos. 4, 5, 6, 7, 12, 14 and 15).

Grammar :

Navin Balbhodha Marathi Vyakarana by T. B. Joshi, Book IV, revised by R. S. Dosjoi, B.A. (for reference only).

Paper II: Panch Kathakar edited by Shri V. S. Khandekar (All except Nos. 1, 4, 8, 9 and 13.

PART III (*Advanced Language*), 1960

For detailed study :

Poetry :

(*a*) Vanavasi Phool by N. V. Tilak.

(*b*) Sloka Kekavali (1-25 stanzas only) by Moropant.

Drama :

(*a*) Alankara Chandrika by F. M. Gore.

(*b*) Vrittadarpan by P. B. Godbole.

(*Third Language*)

Detailed Study :

(*a*) Kavyavilas Part I, edited by V. R. Nerurkar and D. P. Kharkanis—Publishers : K. B. Dhawale, Bombay (pp. 23-80 only).

(*b*) Nibandha Parimal, edited by N. N. Nene. Published by Vidarbha Sahitya Sangha, Nagpur (essays except 4, 5, 6, 7, 12, 14, 15.)

LATIN

PART II, 1960

Caesar :

De Bello Gallico Book. IV.

PART III—(*Advanced Language*) 1960

Ovid :

Metamorphoses, Book I, lines 500 to the end.

(*Third Language*)

Caesar: De Bello Gallico—Chapters 41 to the end.

GERMAN

PART II, 1960.

(*a*) Sprechem Sie Deutschi—by Oscar Burkhard George G. Harrap, O.U.P.

(*b*) Hie Und Da—by N. R. Ewing, Orient Longmans.

(*c*) German Poetry for Students by A. Watson Bain—Macmillan (Nos. 30, 33, 43, 46, 53, 59, 67, 75, 88 and 107).

PART III (*Advanced Language*), 1960.

(*a*) Die Juwelen Und Andere Geschichten by W. W. Dutton—Harrap, O.U.P.

(*b*) Die Abenteuer Von Paula Und Peter—by Else Johannsen and A. M. Wagner, University of London Press, O. U. P (Nos. 17, 22, 34, 41 and 62).

(*c*) German Poetry for Students by A. Watson Bain, Macmillan.

(*Third Language*)

Allweler Fabeln by Pin Hagboldt, Books I and 2 (Heath)

WORLD HISTORY

Reference Books :

An Outline History of the World—Davies.

Survey of Indian History—Panikkar.

Outline History of World Civilization—Pearce.

A Concise History of India—Rawlinson.

World History by Sri M. V. Subrahmanyam (Seshachalam & Co., Madras).

Man and His World by T. Dhanakoty and N. Subramanian (The National Publishing House, Madras-1).

World History by Dr. M. S. Vairana Pillai (Madura Book House, Madurai).

CHAPTER XLIII

DEGREES OF BACHELOR OF ARTS AND BACHELOR OF SCIENCE

(B.A. and B.Sc.)

(Three-year Degree Examinations)
(Regulations)

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1. Candidates for the Degree of Bachelor of Arts or Bachelor of Science Examination shall be required to have passed the Pre-University Examination of this University or an examination accepted by the Syndicate as equivalent thereto and to have subsequently undergone a prescribed course of study in a constituent or affiliated college of this University for a period of not less than three academic years or nine terms.

Course of Study. 2. The course of study shall comprise the following subjects according to a syllabus to be prescribed from time to time.

The course shall be common for the Bachelor of Arts and Bachelor of Science Degrees in Parts I and II.

Part I—English

The course shall comprise—

(*a*) The study in detail of certain prescribed books.

The books prescribed for detailed study shall consist of the following :—

(i) Shakespeare : 2 plays.
(ii) Modern Poetry : 2,000 lines.
(iii) Modern Prose : 2 Texts.

(*b*) Composition:—The study of two non-detailed texts and general composition including essays on general themes, precis-writing and paraphrase.

Note:—The paper set in English, Part I, shall test the candidate's command of correct English, greater emphasis being placed in valuation upon this aspect of the answers than upon the knowledge of the texts.

The study of the detailed texts prescribed shall extend over a period of two years and candidates shall be examined at the end of the second year on the detailed texts. The study of non-detailed text and General Composition shall be extended to the third year, and candidates shall be examined at the end of the third year on Composition.

Part II—A Second Language.

The course shall comprise the study of any one of the following Classical or Modern (Indian or Foreign) languages at the option of the candidate according to the syllabus and text-books prescribed from time to time:—

Classical:

Sanskrit, Greek, Latin, Arabic, Persian, Hebrew and Syriac.

Modern:

(1) *Indian*: Tamil, Telugu, Kannada, Malayalam, Urdu, Marathi, Oriya, Hindi, Gujerati and Bengali.

(2) *Foreign*: French, German, Burmese and Sinhalese.

Part III—Optional Subjects.

The optional subjects shall consist of two Groups—Group-A and Gorup-B. Group-A shall consist of the main subject, or group of subjects, while Group-B shall comprise the study of an ancillary subject or subjects appropriate to the main subject of study.

Optional Subjects B.A. Degree. The following shall be the optional subjects for those taking the Bachelor of Arts Degree:

Group A—Main.

Branch I :	History.
Branch II :	Politics.
Branch III :	Social Sciences.
Branch IV :	Economics.
Branch V :	Geography.
Branch VI :	Philosophy.
Branch VII :	Psychology.
Branch VIII :	Indian Music.
Branch IX :	Western Music.
Branch X :	Drawing and Painting.
Branch XI :	History of Fine Arts.
Branch XII :	Language.

Group B—Ancillary.

Any two of the subjects appropriate to the main subject of study prescribed from the following shall be offered by the candidates. This will not apply to Branch III and to certain of the languages under Branch XII:—

(1) Politics.

(2) Economics.

(3) Philosophy.

(4) Geography.

(5) History of Fine Arts.
(6) Indian Music.
(7) Western Music.
(8) Psychology.
(9) Commerce.
(10) Statistics.
(11) History.
(12) Anthropology.
(13) Sociology.
(14) Languages.

Optional Subjects— B.Sc. Degree The following shall be the optional subjects for those taking the Bachelor of Science Degree:—

Group A—Main.

Branch I :	Mathematics.
Branch II :	Statistics.
Branch III :	Physics.
Branch IV :	Chemistry.
Branch V :	Botany.
Branch VI :	Zoology.
Branch VII :	Geology.
Branch VIII :	Geography.
Branch IX :	Physiology.

Group B—Ancillary.

Any one of the following subjects shall be taken, the subject depending upon the main subject chosen:—

(1) Statistics.
(2) Physics.
(3) Numerical Mathematics.
(4) Mathematical Economics.
(5) Biology.

(6) Educational Psychology.
(7) Mathematics.
(8) Composite Course in Mathematics and Chemistry.
(9) Chemistry.
(10) Geology.
(11) Composite Course in Mathematics and Physics.
(12) Botany.
(13) Zoology.
(14) Physiology.
(15) Composite Ancillary Course for Zoology.
(16) Anthropology.
(17) Archaeology.
(18) Geography.
(19) Astronomy.

Part IV—Minor.

B.A.—Minor Subjects.

A candidate for the Degree of Bachelor of Arts shall offer any two subjects according to a syllabus prescribed from out of the following subjects:—

(1) Physics.
(2) Chemistry.
(3) Biology.
(4) Astronomy.
(5) Statistics.
(6) Geology.
(7) Physical Geography.
(8) Physical Anthropology.
(9) Physiology.

B.Sc.—Minor Subjects.

A candidate for the Degree of Bachelor of Science shall be required to offer any two subjects according to a syllabus prescribed out of the following:—

(1) History.

(2) Politics.

(3) Economics.

(4) Commerce.

(5) Geography.

(6) Psychology.

(7) Philosophy.

(8) History of Fine Arts.

(9) History of Music—Indian.

(10) History of Music—Western.

Course of Study. B.A. Degree

3. The course of study in each of the branches for candidates appearing for the B.A Degree shall be as follows:—

Branch I—History

Group A.

(*a*) Two compulsory Papers in Indian History:

History of India: Paper I (1)

History of India: Paper II (2)

(*b*) Two other Papers to be chosen, taking not more than one from out of the following:—

Section I

(i) History of Greece and Rome upto 395 A.D. (3)

(ii) History of Europe from 395 to 1500 A.D. (4)

(iii) History of Islam upto 1258 A.D. (5)

Section II

(i) History of America since 1776 A.D. (6)

(ii) Modern Asian History from 1850 A.D. to the present day (7)

(iii) History of Europe from 1500 A.D. to the present day (8)

Section III

(i) History of Islam after 1258 A.D. (9)

(ii) The Political and Constitutional History of England upto 1603 A.D. (10)

(iii) The Political and Constitutional History of England from 1603 A.D. to the present day (11)

Group B

Any two from the following:

(i) Politics: (*a*) Political Theory *or* (12)

(*b*) Modern Governments (14)

(ii) Economics: General Economics (23)

(iii) Philosophy: (*a*) Outlines of General Philosophy (56)

or

(*b*) Philosophy of Religion. (19)

(iv) Geography: Principles of Human Geography (31)

or

Regional Geography of World and India (33 & 34)

(v) * History of Fine Arts—History of Indian Art (54)

(vi) * History of Fine Arts—History of World Art (55)

(vii) History of Indian Music (46)

or

(viii) Musicology and History of Western Music (47)

* *Note*:—Candidates choosing one of the History of Fine Arts branches must also choose the other.

Branch II—Politics

Group A.

(*a*) (i) Political Theory, including one of the following texts:— (12)

(1) Selections from Arthasastra.

(2) Burke's Reflections on the French Revolution.

(3) Locke: Second Treatise on Civil Government.

(4) Macchiavelli: The Prince (World's Classics).

(5) J. S. Mill: Representative Government.

(6) Selections from the Kural.

(7) Selections from Aquinas.

(ii) The Evolution of Government (13)

(*b*) Two papers to be chosen from the following:

(1) Modern Governments (Great Britain, France, U.S.A., U.S.S.R., Switzerland, India, Japan, Canada, Australia and Eire.) (14)

(2) Elements of Public Administration (15)

(3) State and Government in Ancient India. (16)

(4) International Relations and Diplomacy. (17)

(5) The Constitutional and Administrative History of Modern India from 1600 A.D. (with documents) (18)

Group B

Any two from the following :

(i) History (*a*) History of Greece and Rome upto 395 A.D. *or* (3)

(*b*) History of Europe from 395 to 1500 A.D. *or* (4)

(*c*) History of Europe from 1500 A.D. to the present day *or* (8)

(*d*) History of America since 1776 A.D. *or* (6)

(*e*) Political and Constitutional History of England upto 1603 A.D. *or* (10)

(*f*) Political and Constitutional History of England from 1603 A.D. to the present day (11)

(ii) Philosophy : Outlines of General Philosophy (56)

(iii) Psychology : General Psychology (41)

(iv) Economics : General Economics (23)

Branch III—Social Sciences

The candidates opting for this Branch shall take one subject from each of the following three sections; and there shall be two papers in each of the three subjects :—

Section I

(i) History (*a*) History of India—Paper II (2)

(*b*) History of Greece and Rome upto 395 A.D. (3)

(ii) Philosophy: (*a*) Ethics (38)
(*b*) Philosophy of Religion (19)

(iii) Law: (*a*) Jurisprudence and Indian Constitutional Law (60)

(*b*) General Principles of Contracts and Torts (61)

Section II

(i) Politics: (*a*) Political Theory including a text (12)

(*b*) Modern Governments (14)

(ii) Psychology: (*a*) General Psychology (41)
(*b*) Social Psychology (20)

(iii) Anthropology: (*a*) Social Anthropology (21)
(*b*) Cultural Anthropology (22)

Section III

(i) Economics: (*a*) General Economics (23)
(*b*) Indian Economic Problems (29)

(ii) Geography: (*a*) Principles of Human Geography (31)

(*b*) Social Geography of India (24)

(iii) Sociology: (*a*) Paper I (25)
(*b*) Paper II (26)

(The subjects will cover both Main and Ancillary.)

Branch IV—Economics

Group A

(i) Principles of Economics (27)

(ii) Currency, Banking, International Trade and Public Finance (28)

(iii) Indian Economic Problems (29)

(iv) Modern Economic Development of the United Kingdom, U.S.A. and U.S.S.R. (30)

Group B

Any two from the following:

(i) History: History of India—Paper II (2)

(ii) Politics: Modern Governments (14)

(iii) Commerce: Principles of Commerce (58)

(iv) Statistics: Elements of Statistics (57)

Branch V—Geography

Group A

(i) Principles of Human Geography (31)

(ii) Physical Basis of Geography (32)

(iii) (*a*) Regional Geography of the World (33)

(*b*) Regional Geography of India (34)

(iv) Practical Geography and Practical Test (35)

Group B

Any two from the following:

(i) History: History of India—Paper I (1)

(ii) Politics: Political Theory (12)

(iii) Philosophy: (*a*) European Logic and Theory of Knowledge *or* (36)

(*b*) Indian Logic *or* (37)

(*c*) Ethics *or* (38)

(*d*) Outlines of Indian Philosophy *or* (39)

(*e*) Outlines of European Philosophy from Descartes to Kant *or* (40)

(*f*) Outlines of General Philosophy *or* (56)

(*g*) Philosophy of Religion (19)

(iv) Psychology: General Psychology (41)

(v) Anthropology: (*a*) Social Anthropology (21)

or

(*b*) Cultural Anthropology (22)

(vi) Statistics: Elements of Statistics (57)

(vii) Commerce: Principles of Commerce (58)

(viii) Economics: Principles of Economics (27)

Branch VI—Philosophy

Group A

(i) (*a*) European Logic and Theory of Knowledge *or* (36)

(*b*) Indian Logic (37)

(ii) Ethics (38)

(iii) Outlines of Indian Philosophy (39)

(iv) Outlines of European Philosophy from Descartes to Kant (40)

Group B

Any two from the following:

(i) Psychology: General Psychology (41)

(ii) History: Any one of the subjects mentioned under sub-section (b) of Group A Branch I—History (3 to 11)

(iii) Politics: Any one of the papers mentioned under Group A (*a*) of Branch II—Politics (12 & 13)

(iv) Social Sciences: Sociology—Paper I (25)

(v) Economics: General Economics (23)

Branch VII—Psychology

Group A

(i) General Psychology (41)

(ii) Experimental Psychology and Elementary Statistics (42)

(iii) Child and Adolescent Psychology (43)

(iv) Social and Abnormal Psychology (44)

Group B

Any two from the following:

(i) Anthropology: (*a*) Social Anthropology (21)

or

(*b*) Cultural Anthropology (22)

(ii) Sociology—Paper I (25)

(iii) Philosophy: (*a*) Outlines of European Philosophy from Descartes to Kant (40)

or

(*b*) European Logic and Theory of Knowledge (36)

or

(*c*) Indian Logic (37)

(iv) History of Fine Arts: History of World Art (55)

(v) Statistics: Elements of Statistics (57)

Branch VIII—Indian Music

Group A

(i) Theory of Music—Paper I (45)

(ii) History of Music—Paper II (46)

(iii) Practical Test: Compositions

(iv) Practical Test: Manodharma Sangita

Group B

Any two from the following:

(i) One Language: Tamil or Telugu or Sanskrit, provided that the language chosen is different from the one offered under Part II (62)

(ii) History: Indian History—Paper I (1)

(iii) Psychology: General Psychology (41)

(iv) *History of Fine Arts—History of Indian Art (54)

(v) *History of Fine Arts—History of World Art (55)

(vi) Musicology and History of Western Music (47)

(vii) Philosophy of Religion (19)

(viii) Outlines of General Philosophy (56)

**Note*:—Candidates choosing one of the History of Fine Arts Branches must also choose the other.

Branch IX—Western Music

Group A

(i) Musicology and History of Western Music—(Theory, Form and Instrumentation—History of Music) (47)

(ii) Harmony. (48)

(iii) Practical Test I.

(iv) Practical Test II.

Group B

Any two from the following:—

(i) General Musicology and History of Indian Music (59)

(ii) History of World Art (55)

(iii) History: Indian History—Paper I or (1)
Indian History—Paper II (2)

(iv) Politics: Any one of the papers mentioned under Group A of Branch II—Politics (12 to 18)

(v) Economics: General Economics (23)

(vi) Philosophy: (*a*) Any one of the four papers mentioned under Group A of Branch VI—Philosophy (36 to 40)

or (*b*) Outlines of General Philosophy (56)

or (*c*) Philosophy of Religion (19)

Branch X—Drawing and Painting

Group A

(i) Nature Drawing in Oils (49)

(ii) (*a*) Perspective and object drawing in water colour (50)

(*b*) Decorative Art (51)

(iii) Lettering (52)

(iv) Principles and appreciation of Arts and Crafts Processes (53)

Group B

The following papers shall be taken:

History of Fine Arts:

(i) History of Indian Art (54)

(ii) History of World Art (55)

Branch XI—History of Fine Arts

Group A

(i) History of Fine Arts—Indian Art (54)

(ii) History of Fine Arts—World Art (55)

(iii) Lettering (52)

(iv) Principles and appreciation of Arts and Crafts Processes (53)

Group B

Any two from the following:—

(i) History: Indian History—Paper I (1)

(ii) History of Greece and Rome upto 395 A.D. (3)

(iii) History of Europe from 395 to 1500 A.D. (4)

(iv) General Musicology and History of Indian Music (59)

(v) Musicology and History of Western Music (47)

Branch XII—Languages

Candidates shall select any one of the following languages :—

ENGLISH

The course shall comprise the study of the following:

Group A

1. Shakespeare—2 plays for detailed study and one play for non-detailed study.
2. Drama of the 17th, 18th, 19th and 20th Centuries.
3. Prose of the 17th, 18th, 19th and 20th Centuries.
4. Poetry of the 17th, 18th, 19th and 20th Centuries.

Group B

5. History of Literature.
6. Social History of England

or

A Modern European Language.

SANSKRIT

The course shall comprise the study of the following:

Section A

1. Books of the Later Period I (Classical Literature, Prose, Poetry and Drama)
2. Ancient Indian History and Culture upto 1000 A.D.
3. Books of the Early Period (Prescribed books representative of the Literature of the Vedic Period).

4. Books of the Later Period II (Prescribed books representative of the Epic Period)
5. Comparative Philology and History of Sanskrit Literature—Vedic Period only.
6. Elements of Poetics, Grammar and Indian Logic

or

Section B

(a) General Part:

1. Prescribed Text-Books—General I—Nyaya and Smriti Texts (Muktavali, Smriti and Dharma-sutras)
2. Prescribed Text-Books—General II—Grammar and Vedic Texts (Siddhanta Kaumudhi, Rig-Veda and Upanishad)
3. Prescribed Text-Books—General III—Mimamsa Texts (Mimamsa—Nyayaprakasa and Jaiminiya Nyayamala)

(*b*) Special Part: Consisting of three papers (Nos. 4 to 6) relating to one of the following six branches:

(i) Mimamsa (ii) Vedanta (iii) Nyaya (iv) Vyakarana (v) Sahitya (vi) Jyotisha.

Note:—Of the six papers in Section A or Section B, the examination in Papers 1 and 2 may be taken at the end of the second year and the examination in the remaining four papers 3 to 6 at the end of the third year.

HEBREW

The course shall comprise the study of the following:—

Group A.

1. Prose—About 100 pages.
2. Poetry—About 200 lines.
3. Study of a prescribed Author's life and works.
4. Grammar.
5. History of Hebrew literature.

Group B.

1. Ancient History of Palestine.

2. Dispersion of the Jews (Assyrian), Babylonian, Persian and Roman Empires.

SYRIAC

The course shall comprise the study of the following:—

Group A.

1. Prose selections—About 300 pages.
2. Poetry selections—About 1,000 lines.
3. Study of a prescribed Author's life and works.
4. Grammar.
5. History of Syriac Literature.

Group B.

1. History of Syria and Palestine upto XIV Century.
2. History of Syrian Church in India.

LATIN

The course shall comprise the study of the following:

Group A

1. Two classical Dramas, from (i) Plautus and (ii) Terence or Seneca.
2. Prose: A Speech of Cicero and a book of Tacitus.
3. Poetry: A book of Virgil, a book of Horace's Odes, and a Satire of Juvenal.
4. History of Literature.
5. Study of a prescribed author's life and works.
6. Translation from English into the language and from the language into English (unseen)

Group B

7. (*a*) History of Rome during the Republic; and
   (*b*) History of Rome from Augustus to the death of Nero.

FRENCH

The course shall comprise the study of the following:

Group A

1. Three Classical Dramas from Racine, Corneille, Moliere.
2. Two thousand lines of Poetry from the Oxford Book of French Verse.
3. Three books by writers of the 19th and 20th centuries, of which two shall be novels.
4. History of French Literature from the Renaissance to modern times.
5. Study of a prescribed author's life and works.
6. Translation from English into the language and from the language into English (unseen)

Group B

7. (*a*) History of Europe from 395 to 1,500 A.D. (4)
   (*b*) History of Europe from 1,500 A.D. (8)

ARABIC

The course shall comprise the study of the following:

Group A.

1. Three longer Surahs of the Quran. Quramic Exegesis, Ahadis. Tassawurif, Tarikh and light Literature and Poetry of the Early Omayyid and the Abbasid periods.
2. Grammar and Rhetorics.
3. History of Literature.
4. Literary Criticism.
5. Study of a Prescribed Author's life and works.

Group B.

History of the Arabs—Period of Jahalliyyah and of the Post-Islamic Period from 495 A.D. to 850 A.D.

PERSIAN

The course shall comprise the study of the following:

Group A.

1. Maqalat, Ruqaat, Waqaih, Ornate Prose and light Literature. Epic, Didachi and Lyrical Poetry.
2. Grammar and Rhetorics.
3. History of Literature & Criticism.
4. Study of a Prescribed Author's life and works.

Group B.

5. Cultural History of the Minor Persian Dynasties from Samanides to the end of Saljuqs

or

Cultural History of the Post-Mangolian Period upto the end of Safawides

or

Arabic Language (Prescribed Text-Books).

URDU

The course shall comprise the study of the following:

Group A

1. Urdu Prose and Poetry of the 19th and 20th centuries.
2. Grammar, Prosody and Rhetorics.
3. History of Literature.
4. Literary Criticism.
5. Prescribed Author's Life and Works.

Group B

6. Cultural History of Moghul Rulers from 1526 to 1857 A.D.

or

Persian Language

or

Arabic Language

or

Hindi Language

HINDI

The course shall comprise the study of the following:

1. History of Hindi Literature.
2. Indian History and Culture.
3. Prescribed Text-Books I.
4. Prescribed Text-Books II.
5. Prosody and Poetics.
6. History of Language and Grammar.

Note:—The Examination for first two papers may be taken at the end of the second year and the examination in the remaining four papers (Nos. 3 to 6) at the end of third year.

MARATHI

The course shall comprise the study of the following:—

1. History of Marathi Literature.
2. History of Culture of Maharashtra.
3. Prescribed Text-Books I—Poetry.
4. Prescribed Text-Books II—Prose and Drama.

5. Prosody and Poeties and Criticism.
6. History of Language and Grammar.

Note —The Examination for the first two papers may be taken at the end of the second year and the examination in the remaining papers (Nos. 3 to 6) at the end of the third year.

TAMIL

The course shall comprise the study of the following:

1. History of Tamil Literature.
2. History of Tamil Nad and Culture.
3. Prescribed Text-Books I.
4. Prescribed Text-Books II
5. Grammar, Prosody and Poetics.
6. History of the Tamil Language and Elements of the Comparative Grammar of the Dravidian languages.

Note:—The Examination for the first two papers may be taken at the end of the second year and the examination in the remaining four papers (Nos. 3 to 6) at the end of the third year.

TELUGU

The course shall comprise the study of the following:

1. History of Telugu Literature.
2. History of Andhra Desa and Andhra Culture.
3. Prescribed Text-Books I—comprising
   (i) Old Poetry and
   (ii) Modern Poetry
4. Prescribed Text-Books II—comprising
   (i) Drama and
   (ii) Prose texts

5. Grammar, Prosody and Poetics.
6. History of Telugu Language and Elements of the Comparative Grammar of the Dravidian languages.

Note:—The examination for the first two papers may be taken at the end of the second year and the examination in the remaining four papers (Nos. 3 to 6) at the end of the third year.

KANNADA

The course shall comprise the study of the following:

[(*a*) The study of poetical selections representative of the several periods of Kannada Literature. There will be of about 4000 lines, of which about 1500 lines will be from classical poetry.

(*b*) The History of Kannada Literature.

(*c*) Grammar, Prosody and Poetics and the History of Kannada language.

(*d*) Elements of the Comparative Grammar of the Dravidian languages.]

1. History of Literature.
2. History of Karnataka and Culture.
3. Prescribed Text-Books I.
4. Prescribed Text-Books II.
5. Grammar, Prosody and Poetics.
6. History of Language and Elements of the Comparative Grammar of the Dravidian languages.

Note:—The examination for the first two papers may be taken at the end of the second year and the examination in the remaining four papers (Nos. 3 to 6) at the end of the third year.

MALAYALAM

The course shall comprise the study of the following:—

1. History of Malayalam Literature.
2. History of Kerala and Culture.
3. Prescribed Text-Books I.
4. Prescribed Text-Books II.
5. Grammar, Prosody and Poetics.
   History of Language and Elements of the Comparative Grammar of the Dravidian languages.

Note:—The examination for the first two papers may be taken at the end of the second year and the examination in the remaining four papers (Nos. 3 to 6) at the end of the third year.

Course of Study B.Sc. Degree.

4. The course of study in each of the main subjects for candidates appearing for Part III of the B.Sc. Degree shall be as follows:

Branch I—Mathematics

Group A

(i)	Pure Geometry and Trigonometry	(1)
(ii)	Analytical Geometry	(2)
(iii)	Algebra and Calculus—Paper I	(3)
(iv)	Algebra and Calculus—Paper II	(4)
(v)	Mechanics	(5)
(vi)	Astronomy	(6)

Group B

Any one of the following according to the syllabus prescribed:

(i) Statistics	(28)
(ii) Physics	(29)
(iii) Numerical Mathematics	(30)

Branch II—Statistics

Group A

(i) Paper I	(7)
(ii) Paper II	(8)
(iii) Paper III	(9)
(iv) Paper IV	(10)

Two Practical tests.

Group B

Any one of the following according to the syllabus prescribed:

(i) Physics	(29)
(ii) Mathematical Economics	(31)
(iii) Biology	(32)
(iv) Numerical Mathematics	(30)
(v) Educational Psychology	(33)

Branch III—Physics

Group A

(i) Mechanics and Sound	(11)
(ii) General Physics and Heat	(12)
(iii) Light	(13)
(iv) Electricity and Magnetism	(14)
(v) Modern Physics	(15)

Two Practical tests.

Group B

Any one of the following according to the syllabus prescribed:—

(i) Mathematics (34)

(ii) Composite course in Mathematics and Chemistry (35-A & 35-B)

(iii) Chemistry (36)

(iv) Geology (37)

(v) Statistics (28)

Branch IV—Chemistry

Group A.

(i) Theoretical Chemistry (16)

(ii) Physical Chemistry (17)

(iii) Inorganic Chemistry (18)

(iv) Organic Chemistry (19)

Two Practical tests.

Group B

Any one of the following according to the syllabus prescribed:—

1. Composite course in Mathematics and Physics (35-A & 35-C)
2. Mathematics (34)
3. Physics (29)
4. Botany (38)
5. Zoology (39)
6. Geology (37)
7. Physiology (40)

Branch V—Botany

Group A [20 (i to ix)]

(i) Thallophyta, Bryophyta and Plant Pathology.

(ii) Pteridophytes, Gymnosperms and Anatomy.

(iii) External Morphology and Taxonomy of Angiosperms and Embryology.

(iv) Physiology, Ecology, Heredity and Evolution.

Two Practical tests.

Group B

Any one of the following according to the syllabus prescribed:—

(i)	Chemistry	(36)
(ii)	Zoology	(39)
(iii)	Geology	(37)

Branch VI—Zoology

Group A [21 (i to x)]

(i) Invertebrata

(ii) Chordata

(iii) Cytology and General Embryology

(iv) Physiology, Ecology and Evolution

Two Practical tests.

Group B

Any one of the following according to the syllabus prescribed:—

(i)	Composite ancillary course	(41)
(ii)	Chemistry	(36)
(iii)	Botany	(38)
(iv)	Geology	(37)

Branch VII—Geology

Group A [22 (i to v)]

(i) General and Structural Geology.

(ii) Stratigraphy, Indian Geology and Palaeontology.

(iii) Mineralogy and Economic Geology.

(iv) Petrology.

Two Practical tests.

Group B

Any one of the following according to the syllabus prescribed:—

(i) Composite course in Mathematics and Physics (35-A & 35-C)

(ii) Mathematics (42)

(iii) Physics (29)

(iv) Chemistry (36)

(v) Botany (38)

(vi) Zoology (39)

(vii) Anthropology: Any one of the following:

(*a*) Social Anthropology (common with B.A.) (21—B.A.)

(*b*) Cultural Anthropology (common with B.A.) (22—B.A.)

(*c*) Sociology Paper I (common with B.A.) (25—B.A.)

(viii) Archaeology (43)

(ix) Geography: (*a*) Physical Basis of Geography. (44)

(*b*) Regional Geography of India [Syllabus common with B.A. Paper (iii) (b)] (34—B.A.)
Practical Test.

Branch VIII—Geography

Group A

(i) Principles of Human Geography (ii) Physical Basis of Geography (iii) (*a*) Regional Geography of the World (*b*) Regional Geography of India	Common with B.A., Br. V. (31 to 34 —**B.A.**)

(iv) Any one of the following optional subjects:

(*a*) Geomorphology (23)

(*b*) Climatology and Oceanography (24)

(*c*) Bio-geography (25)

(*d*) Cartography (26)

Two Practical tests (Same syllabus as for Paper IV—B.A., Br. V) (35—**B.A.**)

Group B

Any one of the following according to the syllabus prescribed :—

(i) Mathematics (42)

(ii) Physics (29)

(iii) Geology (37)

(iv) Chemistry (36)

(v) Botany (38)

(vi) Zoology (39)

(vii) Statistics (28)

(viii) Astronomy (6)

Branch IX—Physiology

Group A

The Scheme of the course shall be as prescribed in the syllabus.

Group B (27)

Any one of the following according to the syllabus prescribed:—

(i) Physics (29)
(ii) Chemistry (36)
(iii) Botany (38)
(iv) Zoology (39)

Scheme of Examination— Common for B.A. and B.Sc. Parts I and II.

4. (*a*) The scheme of examination shall be as follows :

Part I—English

There shall be four papers, each of three hours' duration, carrying a maximum of 100 marks each.

			Hours	*Marks*
I.	Shakespeare	...	3	100
II.	Modern Poetry	...	3	100
III.	Modern Prose	...	3	100
IV.	Composition	...	3	100

Candidates shall take the first three papers under this Part at the end of the second year and the fourth paper at the end of the third year.

Part II—Second Language

4. (*b*) There shall be three papers, each of three hours' duration, carrying a maximum of 100 marks each.

		Hours	*Marks*
Paper I	...	3	100
Paper II	...	3	100
Paper III	...	3	100

The first and second papers shall be taken at the end of the second year and the third paper at the end of the third year.

Part III—Optional Subject

Bachelor of Arts.

4. (*c*) There shall be four papers of three hours' duration in the main subjects under Group A, each carrying a maximum of 100 marks and two papers in the subjects under Group B.

In the case of Branch III—Social Sciences, there shall be six papers of three hours' duration carrying a maximum of 100 marks each, two papers in each of the subjects chosen from the three different sections.

In the case of the languages under Branch XII, the number of papers and scheme of marks shall be as detailed under the Branch.

The examination in Group B of Part III may be taken at the end of the second year and the examination in Group A at the end of the third year.

Branch I—History

		Hours	*Marks*
1.	History of India—Paper I ...	3	100
2.	History of India—Paper II...	3	100
3.	Optional subject 1 ...	3	100
4.	Optional subject 2 ...	3	100
5.	Group B subject 1 ...	3	100
6.	Group B subject 2 ...	3	100
		Total ...	600

Branch II—Politics

		Hours	Marks
1.	Political Theory including the text prescribed ...	3	100
2.	The Evolution of Government	3	100
3.	Optional subject 1 ..	3	100
4.	Optional subject 2 ...	3	100
5.	Group B subject 1 ...	3	100
6.	Group B subject 2 ...	3	100
		Total ...	600

Branch III—Social Sciences

		Hours	Marks
1.	Section 1—Optional subject		
	Paper I ...	3	100
	Paper II ...	3	100
2.	Section 2—Optional subject		
	Paper I ...	3	100
	Paper II ...	3	100
3.	Section 3—Optional subject		
	Paper I ...	3	100
	Paper II ...	3	100
		Total ...	600

Branch IV—Economics

		Hours	Marks
1.	Principles of Economics ...	3	100
2.	Currency, Banking, International Trade and Public Finance ...	3	100
3.	Indian Economic Problems ...	3	100
4.	Modern Economic Development of the U.K., U.S.A. and U.S.S.R. ...	3	100
5.	Group B subject 1 ...	3	100
6.	Group B subject 2 ...	3	100
		Total ...	600

Branch V—Geography

		Hours	Marks
1.	Principles of Human Geography ...	3	100
2.	Physical Basis of Geography.	3	100
3.	Regional Geography of the World and Regional Geography of India ...	3	100
4.	Practical Geography and Practical test ...	3	100
5.	Group B subject 1 ...	3	100
6.	Group B subject 2 ...	3	100
		Total ...	600

Branch VI—Philosophy

		Hours	Marks
1.	European Logic and Theory of Knowledge or Indian Logic	3	100
2.	Ethics ...	3	100
3.	Outlines of Indian Philosophy	3	100
4.	Outlines of European Philosophy from Descartes to Kant ...	3	100
5.	Group B subject 1 ...	3	100
6.	Group B subject 2 ...	3	100
		Total ...	600

Branch VII—Psychology

		Hours	Marks
1.	General Psychology ...	3	100
2.	Experimental Psychology and Elements of Statistics ...	3	100
3.	Elements of Social and Abnormal Psychology ...	3	100
4.	Elements of Child and Adolescent Psychology ...	3	100
5.	Group B subject 1 ...	3	100
6.	Group B subject 2 ...	3	100
		Total ...	600

Branch VIII—Indian Music

		Hours	Marks
1.	Theory of Music—	3	100
2.	History of Music—	3	100
3.	Practical Test I—Compositions.	3	100
4.	Practical Test II—Manodharma Sangita ...	3	100
5.	Group B subject 1 ...	3	100
6.	Group B subject 2 ...	3	100
		Total ...	600

Branch IX—Western Music

		Hours	Marks
1.	Theory, Form and Instrumentation—History of Music ...	3	100
2.	Harmony ...	3	100
3.	Practical I ...	3	100
4.	Practical II ...	3	100
5.	Group B subject 1 ...	3	100
6.	Group B subject 2 ...	3	100
		Total ...	600

Branch X—Drawing & Painting

		Hours	Marks
1.	Nature Drawing in Oils—Practical ...	12 (3 hours per day)	100
2.	(*a*) Perspective and Object Drawing in water colour—Practical ...	6 (3 hours per day)	100 (for (a) and (b))
	(*b*) Decorative Art—Practical ...	12 (3 hours per day)	
3.	(*a*) Lettering—Practical ...	6 (3 hours per day)	30
	(*b*) Sketch Books	—	70
4.	Principles and appreciation of Art and Craft processes ...	3	100
5.	Group B subject 1 ...	3	100
6.	Group B subject 2 ...	3	100
		Total ...	600

Branch XI—History of Fine Arts

		Hours	Marks
1.	History of Indian Art ...	3	100
2.	History of World Art ...	3	100
3.	Principles and appreciation of Art and Craft processes ...	3	100
4.	(*a*) Lettering ...	6 (3 hours per day)	30
	(*b*) Note-books and Architectural Albums, charts, models, etc. ...	—	70
5.	Group B subject 1 ...	3	100
6.	Group B subject 2 ...	3	100
		Total ...	600

Branch XII—Languages

ENGLISH

Group A

			Hours	*Marks*
1.	Shakespeare	...	3	100
2.	Drama	...	3	100
3.	Prose	...	3	100
4.	Poetry	...	3	100

Group B

5.	History of Literature	...	3	100
6.	Social History of England *or* A Modern European Language.		3	100
		Total	...	600

SANSKRIT

Section A.

		Hours	*Marks*
1.	Books of the Later Period I.	3	100
2.	Ancient Indian History and Culture upto 1,000 A.D. ...	3	100
3.	Books of the Early period ...	3	100
4.	Books of the Later Period II.	3	100
5.	Comparative Philology and History of Sanskrit Literature—Vedic period only ...	3	100
6.	Elements of Poetics, Grammar and Indian Logic ...	3	100
		Total ...	600

or

Section B.

		Hours	Marks
1.	Prescribed Text-books General I	3	100
2.	Do. General II	3	100
3.	Do. General III	3	100
4.	Do. Special I	3	100
5.	Do. Special II	3	100
6.	Do. Special III	3	100
	Total ...		600

HEBREW

Group A.

		Hours	Marks
1.	Prescribed Text-books in Prose.	3	100
2.	Prescribed Text-books in Poetry	3	100
3.	Grammar ...	3	100
4.	History of Hebrew Literature and the study of a prescribed Author's Life and works ...	3	100
	Group B.		
5.	Ancient History of Palestine ...	3	100
6.	Dispersion of the Jews ...	3	100
	Total ...		600

SYRIAC

Group A.

		Hours	Marks
1.	Prescribed Text-books in Prose.	3	100
2.	Prescribed Text-books in Poetry.	3	100
3.	Grammar ...	3	100
4.	History of Syriac Literature and the study of a prescribed Author's life and works ...	3	100

Group B.

		Hours	Marks
5.	History of Syria and Palestine upto XIV Century ...	3	100
6.	History of the Syrian Church in India ...	3	100
	Total ...		600

LATIN

Group A.

		Hours	Marks
1.	Prescribed Text-books in Poetry and Drama ...	3	100
2.	Prescribed Text-books in Prose	3	100
3.	Translation ...	3	100
4.	History of Latin Literature and the study of a prescribed Author's life and works ...	3	100

Group B.

		Hours	Marks
5.	History of Rome during the Republic ...	3	100
6.	History of Rome from Augustus to the death of Nero ...	3	100
	Total ...		600

FRENCH

Group A.	Hours	Marks
1. Prescribed Text-Books in Poetry and Drama ...	3	100
2. Prescribed Text-Books in Prose ...	3	100
3. Translation ...	3	100
4. History of French Literature from Renaissance to Modern Times and the study of a prescribed Author's Life and Works.	3	100
Group B.		
5. History of Europe from 395 to 1500 A.D. ...	3	100
6. History of Europe from 1500 A.D. ...	3	100
	Total ...	600

ARABIC

Group A.	Hours	Marks
1. Prose and Poetry ...	3	100
2. Grammar and Rhetorics ...	3	100
3. History of Literature and Literary Criticism ...	3	100
4. Prescribed Author ...	3	100
Group B.		
5. Paper I ...	3	100
6. Paper II ...	3	100
	Total ...	600

PERSIAN

	Group A.		*Hours*	*Marks*
1.	Prose and Poetry	...	3	100
2.	Grammar and Rhetorics	...	3	100
3.	History of Literature and Literary Criticism	...	3	100
4.	Prescribed Author	...	3	100
	Group B.			
5.	Paper I	..	3	100
6.	Paper II	..	3	100
			Total ...	600

URDU

	Group A.		*Hours*	*Marks*
1.	Prose and Poetry	...	3	100
2.	Grammar, Prosody and Rhetorics	...	3	100
3.	History of Literature and Literary Criticism	...	3	100
4.	Prescribed Author	...	3	100
	Group B.			
5.	Paper I	...	3	100
6.	Paper II	...	3	100
			Total ...	600

HINDI

			Hours	*Marks*
1.	History of Hindi Literature		3	100
2.	Indian History and Culture.		3	100
3.	Prescribed Text-Books I	...	3	100
4.	Prescribed Text-Books II	...	3	100
5.	Prosody and Poetics	...	3	100
6.	History of Language and Grammar	...	3	100
			Total ...	600

MARATHI

		Hours	Marks
1.	History of Marathi Literature.	3	100
2.	History of Culture and Maharashtra ...	3	100
3.	Prescribed Text-Books I ...	3	100
4.	Prescribed Text-Books II ...	3	100
5.	Prosody & Poetics and Criticism.	3	100
6.	History of Language and Grammar ...	3	100
	Total ...		600

TAMIL

		Hours	Marks
1.	History of Literature ...	3	100
2.	History of Tamil Nad and Culture ...	3	100
3.	Prescribed Text-Books I ...	3	100
4.	Prescribed Text-Books II ...	3	100
5.	Grammar, Prosody and Poetics	3	100
6.	History of Language and Elements of the Comparative Grammar of the Dravidian languages ...	3	100
	Total ...		600

TELUGU

		Hours	Marks
1.	History of Telugu Literature ...	3	100
2.	History of Andhra Desa and Culture ...	3	100
3.	Prescribed Text-books I ...	3	100
4.	Prescribed Text-books II ...	3	100
5.	Grammar, Prosody and Poetics.	3	100
6.	History of Telugu Lauguage and Elements of the Comparative Grammar of the Dravidian languages ...	3	100
	Total ...		600

KANNADA

		Hours	Marks
1.	History of Literature ...	3	100
2.	History of Karnataka and Culture	3	100
3.	Prescribed Text-books I ...	3	100
4.	Prescribed Text-books II ...	3	100
5.	Grammar, Prosody and Poetics...	3	100
6.	History of Language and Elements of the Comparative Grammar of the Dravidian languages ...	3	100
	Total ...		600

MALAYALAM

		Hours	Marks
1.	History of Malayalam Literature ...	3	100
2.	History of Kerala and Culture ...	3	100
3.	Prescribed Text-books I ...	3	100
4.	Prescribed Text-books II ...	3	100
5.	Grammar, Prosody and Poetics...	3	100
6.	History of Language and Elements of the Comparative Grammar of the Dravidian languages ...	3	100
	Total ...		600

Bachelor of Science

4. (*d*) The Scheme of Examination in each of the main subjects for candidates appearing for B.Sc. Degree shall be as follows:—

The examination in Group B may be taken at the end of the second year and the examination in Group A at the end of the third year.

Branch I—Mathematics

Group A.

		Hours	*Marks*
1. Pure Geometry and Trigonometry	...	3	100
2. Analytical Geometry	...	3	100
3. Algebra and Calculus—Part I	...	3	100
4. Algebra and Calculus—Part II	...	3	100
5. Mechanics	...	3	100
6. Astronomy	...	3	100
		Total ...	600

Group B.

(*a*) *Statistics*

		Hours	*Marks*
1. Paper I	...	3	75
2. Paper II	...	3	75
		Total ...	150

or

(b) Physics

		Hours	Marks
1.	Paper I—Mechanics, General Physics and Heat ...	3	50
2.	Paper II—Sound, Light, Magnetism and Electricity ...	3	50
3.	Practical ...	3	50
		Total ...	150

or

(c) Numerical Mathematics

	Hours	Marks
Paper I ...	3	75
Paper II ...	3	75
	Total ...	150

Branch II—Statistics

Group A.

		Hours	Marks
1.	Statistics—Paper I ...	3	100
2.	Statistics—Paper II ...	3	100
3.	Statistics—Paper III ...	3	100
4.	Statistics—Paper IV ...	3	100
5.	Practical I ...	3	80
6.	Practical II ...	3	80
7.	Record Note-book ...	3	40
		Total ...	600

Group B.

(*a*) *Physics*

The same as for Group-B—Physics under Branch I

or

(*b*) *Mathematical Economics*

		Hours	*Marks*
Paper I	...	3	75
Paper II	...	3	75
	Total ...		150

or

(*c*) *Biology*

		Hours	*Marks*
Theory:—			
Biology Paper I	...	2	50
Biology Paper II	...	2	50
Practical:—			
Parts A & B together (20 for Part A and 20 for Part B)	...	3	40
Record Note-books:—			
Biology I	...		5
Biology II	...		5
	Total ...		150

or

(*d*) *Numerical Mathematics*

		Hours	*Marks*
Paper I	...	3	75
Paper II	...	3	75
	Total ...		150

or

(e) Educational Psychology

		Hours	Marks
Paper I	...	3	50
Paper II	...	3	50
Practical	...	3	40
Laboratory Note-books		—	10
	Total ...		150

Branch III—Physics

Group A.

			Hours	Marks
1.	Mechanics and Sound	...	3	80
2.	General Physics and Heat	...	3	80
3.	Light	...	3	80
4.	Electricity and Magnetism	...	3	80
5.	Modern Physics	...	3	80
6.	Practical Examination I—Mechanics, General Physics, Heat and Sound	...	3	80
7.	Practical Examination II—Light, Magnetism and Electricity	...	3	80
	Laboratory Note-books	...	—	40
		Total ...		600

Group B.

		Hours	Marks
(*a*) Mathematics—Paper I	...	3	75
Mathematics—Paper II	...	3	75
	Total ...		150

	Hours	Marks
or		
(*b*) (i) Composite Mathematics—one paper ...	3	75
(ii) Chemistry (Composite)		
Written paper ...	3	45
Practical Test ...	3	30
Total ...		150
or		
(*c*) Chemistry — Physical and Inorganic Chemistry ...	3	60
Organic Chemistry ...	2	40
Practical Examination ...	3	40
Laboratory Note-books ...	—	10
Total ...		150
or		
(*d*) Geology—(1) Written Examination Paper I—all divisions other than Mineralogy and Petrology ...	2	50
(2) Written Examination Paper II— Mineralogy & Petrology ...	2	50
Practical Examination—Crystal Models, Fosils, Minerals, Rocks & Map .	3	40
Laboratory Note-books	—	10
Total ...		150

or

(*e*) Statistics—

The same as for Group B—Statistics under Branch I.

Branch IV—Chemistry

	Group A.	*Hours*	*Marks*
Written :	Paper I —Theoretical Chemistry	3	100
	Paper II —Inorganic Chemistry	3	100
	Paper III—Organic Chemistry	3	100
	Paper IV —Physical Chemistry	3	100

Practical:

Two days of six hourse each—

1st day: Inorganic—Qualitative and Volumetric:

Qualitative	...	45
Volumetric	...	45

2nd day: Inorganic—Gravimetric and Organic:

Gravimetric	...	45
Organic	...	45
Laboratory record book which must contain evidence of systematic class work in Inorganic, Organic and Physical Chemistry	...	20
Total	...	600

Group B.	*Hours*	*Marks*
(*a*) (i) Composite Mathematics (common with Group B—Composite Mathematics under Branch III) one paper ...	3	75
(ii) Physics (Composite)		
Written Paper ...	3	45
Practical Test ...	3	30
(including 5 marks for Laboratory Note-books)		
Total ...		150

or

(*b*) Mathematics—The same as for Group B—(*a*) Mathematics under Branch III

or

(*c*) Physics—The same as for Group B—Physics under Branch I

or

	Hours	*Marks*
(*d*) Botany—		
(i) Paper I—Thallophytes, Bryophytes, Pteridophytes, Gymnosperms and Histology ...	2	50
(ii) Paper II—Morphology and Taxonomy of Angiosperms, Plant Physiology and General Principles ...	2	50
Practical Examination ...	3	40
Laboratory Note-books ...		10
Total ...		150

or

	Hours	Marks
(*e*) Zoology—		
(i) Written Examination—Paper I (Invertebrata) ...	2	50
(ii) Written Examination—Paper II (Chordata) ...	2	50
Practical Examination ...	3	40
Laboratory Note-books ...		10
Total ...		150

or

(*f*) Geology — The same as for Group B—Geology under Branch III

or

	Hours	Marks
(*g*) Physiology—		
Written Examination—		
Paper I ...	2	50
Paper II ...	2	50
Practical Examination ...	3	40
Laboratory Note-books ..	—	10
Total ...		150

Branch V—Botany

Group A.

		Hours	*Marks*
1.	Thallophyta, Bryophyta and Plant Pathology ...	3	100
2.	Pteridophytes, Gymnosperms and Anatomy ...	3	100
3.	External Morphology and Taxonomy of Angiosperms and Embryology ...	3	100
4.	Physiology, Ecology, Heredity and Evolution ...	3	100
	Practical I—Morphology and Taxonomy of Angiosperms and Physiology ...	3	80
	Practical II — Thallophyta, Bryophytes, Pteridophyta, Gymnosperms and Anatomy	3	80
	Laboratory Note-books ...	—	20
	Plant Collection ...	—	10
	Slides ...	—	10
		Total ...	600

Group B.

(a) *Chemistry.*

The same as for Group B—Chemistry under Branch III

or

(b) *Zoology*

The same as for Group B—Zoology under Branch IV

or

(c) *Geology*

The same as for Group B—Geology under Branch III.

Branch VI—Zoology

Group A.

		Hours	Marks
1.	Paper I—Invertebrata ...	3	100
2.	Paper II—Chordata ...	3	100
3.	Paper III—Cytology and General Embryology ...	3	100
4.	Paper IV — Physiology Ecology and Evolution ...	3	100
	Practical Examination I ...	3	80
	Practical Examination II ...	3	80
	Laboratory Note-books ...	—	40
		Total ...	600

Group B.

(a) *Composite Ancillary Course.*

		Hours	Marks
1.	Written Paper I ...	2	50
2.	Written Paper II ...	2	50
	Practical Examination ...	3	40
	Laboratory Note-books ...	—	10
		Total ...	150

or

(b) *Chemistry*

The same as for Group B—Chemistry under Branch III

or

(c) *Botany*

The same as for Group B—Botany under Branch IV

or

(d) *Geology*

The same as for Group B — Geology under Branch III.

Branch VII—Geology

Group A.

	Hours	Marks
1. Paper I—General and Structural Geology ...	3	100
2. Paper II—Stratigraphy, Indian Geology and Palaeontology.	3	100
3. Paper III — Mineralogy and Economic Geology ...	3	100
4. Paper IV—Petrology ...	3	100
Practical I—Mineralogy and Petrology ...	3	80
Practical II — Palaeontology, Structural Geology and Blow Pipe ...	3	80
Laboratory Note-books ...	—	20
Specimens ...	—	20
Total ...		600

Group B.

(a) *Composite Paper in Mathematics and Physics*

The same as for Group B—Composite Mathematics and Physics under Branch IV

or

(b) *Mathematics*

	Hours	Marks
1. Mathematics—Paper I ...	3	75
2. Mathematics—Paper II ...	3	75
Total ...		150

or

(c) *Physics*

The same as for Group B—Physics under Branch I

or

(d) *Chemistry*

The same as for Group B—Chemistry under Branch III

or

(e) *Botany*

The same as for Group B—Botany under Branch IV

or

(f) *Zoology*

The same as for Group B—Zoology under Branch IV

or

(g) *Anthropology*

[Common with B.A., Branch III—Social Sciences, Section II—(iii) (*a*) and (*b*)]

or

(h) *Archaeology*

(Will be prescribed later)

or

(i) *Geography*

		Hours	*Marks*
1. Paper I—Physical Basis of Geography	...	2	50
2. Paper II—Regional Geography of India (Syllabus Common with B.A. under Branch V No. 34)	...	2	50
Practical Examination	...		40
Laboratory Note-books	...		10
		Total ...	150

Branch VIII—Geography

Group A.

	Hours	Marks
1. Paper I—Principles of Human Geography (Common with B.A., Branch V) ...	3	100
2. Paper II—Physical Basis of Geography (Common with B.A., Branch V) ...	3	100
3. Paper III—Regional Geography of the World and Regional Geography of India (Common with B.A., Branch V) ...	3	100
4. Paper IV—Optional subject ...	3	100
Practical Geography I ...	3	90
Practical Geography II ...	3	70
Laboratory Note-books and Records ...		40
Total ...		600

Group B.

(*a*) *Mathematics*: The same as for Group-B—Mathematics under Branch VII

or

(*b*) *Physics*: The same as for Group-B—Physics under Branch I

or

(*c*) *Geology*

The same as for Group B—Geology under Branch III

or

(*d*) *Chemistry*

The same as for Group B—Chemistry under Branch III

or

(*e*) *Botany*

The same as for Group B—Botany under Branch IV

or

(f) Zoology

The same as for Group B—Zoology under Branch IV

or

(g) Statistics

The same as for Group B—Statistics under Branch I

or

	Hours	*Marks*
(*h*) Astronomy—One paper (Syllabus Common with Astronomy under Branch I Group A.)	3	150

Branch IX—Physiology

Group A.

			Hours	*Marks*
1.	Paper I	...	3	100
2.	Paper II	...	3	100
3.	Paper III	...	3	100
4.	Paper IV	...	3	100
	Practical Examination I—Histology and Experimental Physiology.		3	80
	Practical Examination II—Chemical Physiology.		3	80
	Laboratory Note-books	...		40
			Total ...	600

Group B.

(a) Physics

The same as for Group B—Physics under Branch I

or

(b) Chemistry

The same as for Group B—Chemistry under Branch III

or

(*c*) *Botany*

The same as for Group B—Botany under Branch IV

or

(*d*) *Zoology*

The same as for Group B—Zoology under Branch IV.

Part IV—Minor

4. (*e*) There shall be one paper of three hours' duration carrying a maximum of 100 marks which may be taken at the end of the second year.

Conditions of eligibility of a candidate for the Degree.

5. No candidate shall be declared eligible for the Degree of Bachelor of Arts or Bachelor of Science unless he has completed the course of study prescribed and passed the examinations in the several subjects contained in the course of study as detailed in the Regulations aforesaid.

6. A candidate shall not be declared eligible for the Degree of Bachelor of Arts or Bachelor of Science unless he has passed the examination in English under Part I, in the selected language under Part II, in the selected Optional group under Part III and the examination in Minor under Part IV.

Marks for a Pass.

7. A candidate for the Degree of Bachelor of Arts or Bachelor of Science shall be declared to have passed.

(1) in Part I of the examination, if he obtains not less than 35 per cent of the marks in each of the first and second Parts of the examination constituting Part I.

(2) in Part II of the examination, if he obtains not less than 35 per cent of the marks in each of the first and second Parts of the examination constituting Part II.

(3) in Part III of the examination, if he obtains not less than 35 per cent of the marks in each of the subjects or in each sub-division of Group A, where specified, and 35 per cent of the marks in Group B.

(4) in Part IV of the examination, if he obtains not less than 35 per cent of the marks.

Classification of successful candidates.

Candidates who obtain 60 per cent or above of the total marks in any one of the Parts I, II and III shall be placed in the first class in that Part. Successful candidates who obtain less than 60 per cent but not less than 50 per cent of the marks in any of the Parts I, II and III shall be placed in the Second Class. All other successful candidates in Parts I, II and III shall be placed in the third class. A candidate securing not less than 75 per cent of the marks in any of the I, II or III Part of the examination shall be declared to have passed with distinction. There will be no classification for Part IV—Minor.

Symbolic representation shall be adopted in declaring the results and a statement of detailed marks shall not be furnished.

Symbol A *plus* will denote 65 per cent and above of the marks but below 75 per cent of the marks.

Symbol A will denote 60 per cent and above of the marks but below 65 per cent.

Symbol B *plus* will denote 55 per cent and above of the marks but below 60 per cent.

Symbol B will denote 50 per cent and above of the marks but below 55 per cent.

Symbol C *plus* will denote 45 per cent and above of the marks but below 50 per cent.

Symbol C will denote 35 per cent and above of the marks but below 45 per cent.

Symbol D will denote Distinctionas having obtained 75 per cent and above of the marks in any one of the subjects; provided the candidate passes the whole examination at one sitting.

Symbol F will denote Failure.

8. It will be open for a candidate during his course of study in the B.Sc. Degree course to offer an additional ancillary provided he undergoes instruction in this subject in the college. Such a candidate can appear for the ancillary any time after the second year of the three year Degree course.

Transitory Provision

9. Candidates who pass the Intermediate Examination shall be eligible to be admitted to the second year of the three-year Degree course.

This Transitory Regulation shall be in force for a period of five years after the introduction of the Three-year Degree course.

10. Candidates who have undergone the course of study and appeared for the examination or been exempted to appear for the examination under the Regulations in force prior to the academic year 1958, shall be permitted to complete the examinations under those Regulations. This Transitory Regulation shall be in force till the Examinations of March-April 1964.

SYLLABUSES AND TEXT-BOOKS

Part I—English

(*Vide* Regulations)

Part II—Second Language

Sanskrit

The course shall comprise the study of Text-books, Grammar, Translation and History of Literature. Text-books shall be as follows:

(1) Poetry—About 200 Verses.

(2) Prose—About 60 pages.

(3) Drama—About one only.

(4) Poetics—About an easy selection.

Paper I:

Prose, Poetry and Drama.

Paper II:

Translation from Sanskrit into English and English to Sanskrit.

Paper III:

Poetics and History of Sanskrit Literature—Epic and Classical Literature only, i.e., omitting Vedic Literature—The two subjects to carry 50 marks each.

Latin

A book of Vergil.
A Speech of Cicero.
Horace: One book of Odes.

French

One Classical Drama.

Poetry:

1,000 lines.

Prose:

Two books, of which one should be a novel.

One of the Prose books may be reserved for examination at the end of the third year.

Hindi

The Course shall comprise the study of:

(i) Representative Selections from Ancient and Modern Poetry from Kabir to the Present day.

(ii) Selections from Modern Prose from Bharatendu to the Present day.

(iii) A Drama or a Collections of one-Act plays.

(iv) A Novel and a representative selection of Short Stories.

(v) History of Literature from Adikal to the Present day. Knowledge of the Chief Characteristics of the four periods together with their Sub-divisions, and the important Poets alone is expected.

(vi) The following Alankaras and Chandas:

Alankaras: Anupras; Shlesh; Yamak; Vakrokti; Upama; Utpreksha; Roopak; Atishayokti; Ananvaya; Arthantaranyas; Virodhabhas; Srishtant and Udaharan.

Chandas: Doha; Choupayee; Soratha; Baravai; Hari-geethika; Rola; Indravajra; Upendravajra; Vanshast; Mandakranta; Malini; Savaiya; Kavitt and Chappay; and Nava Rasa.

(vii) Grammar which shall be limited to the matter contained in Vyakarana Pradeep by Ram Dev.

(viii) Translation from English to Hindi.

(ix) General Composition.

(x) A Text-book in Hindi bearing on the Ancillary subject where there is one.

Marathi.

PART II.

Course of Studies (Details)—

(i) Representative selections from ancient and modern poetry.

(ii) Selection from modern prose.

(iii) A Drama.

(iv) A novel and a representative selection of short stories (for non-detailed study).

(v) History of Literature (knowledge of the chief characteristics of the important authors above is expected).

(vi) Alankaras and Chandas (those which occur in the books prescribed for poetry).

(vii) Grammar.

(viii) Translation from English into Marathi.

(ix) General Composition.

Scheme of Examination.—There shall be three papers of three hours' duration each carrying the maximum of 100 marks.

The first paper shall contain questions on text-books prescribed for detailed study in poetry, history of literature and prosody and poetics.

The second paper shall contain questions on text-books prescribed for detailed study in prose, drama and grammar.

Examination in these two papers will be held at the end of the second year of the three-year degree course.

The third paper shall contain (i) a question or questions on the non-detailed text, (ii) a passage or passages in English for translation into Marathi and (iii) a general composition having reference to modern thought.

The examination in this paper will be held at the end of the third year of the degree course.

Tamil

Hours of Instruction: 6 hrs. a week:—

Two hours will be devoted to Poetry; two hours for Prose; one hour for Grammar, etc., and one hour for Composition and Translation.

Thrid year: 2 hrs. a week:—

One hour will be devoted to Composition and Translation and one hour to A General History of Tamil Literature for which books will be recommended.

Telugu

Paper I—(of three hours' duration, carrying 100 marks) Comprising.

1. Old Poetry.
2. Modern Poetry.

Paper II—(of three hours' duration carrying 100 marks).

3. Drama.
4. Detailed Prose.

Note: Paper I only to contain questions on textual grammar etc., the maximum marks to be set apart for this part viz., grammar etc., being 10 out of 100).

Paper III—Composition and Translation (of three hours' duration and carrying 100 marks.)

This Paper shall contain:

1. One essay question on a Prescribed non-detailed text.
2. One essay question on a general subject; and
3. One question on Translation from English into Telugu.

SYLLABUS.

Grammar, Prosody and Poetics:

Grammar:

1. Telugu Alphabet: Vowels and consonants, Ubhayamulu short, long hard consonants, soft consonants and sthiras.
2. Words—Five kinds: Nouns, Pronouns, Adjectives, verbs, Indeclinables. Their characteristics.
3. Changes in pure Telugu words: G—V; Ayi—Ai; Avu—Au; Iyi—e—.
4. Kala and Drutaprakritika.
5. Sandhi—Telugu—(i) Akara sandhi; Ikara sandhi; Ukara sandhi; Amredita sandhi—Yadagama, (ii) Drutaprakritika sandhi, (iii) A. Gasadadavadesa sandhi, B. Tugagama sandhi, C. Dwiruktatakara sandhi, D. Nugagama sandhi, E. Pugagama sandhi, F. Vakyanta sandhi.
6. Sandhi—Sanskrit—(1) Savarna dirgha sandhi, (2) Guna sandhi, (3) Vriddhi sandhi and (4) Yanadesa sandhi.
7. Classification of Telugu words—Tatsama, Tadbhava, Desya (Andhra Desya and Anya Desya), Gramya, Anindya gramya. Their characteristic features.
8. Sandhi—Sanskrit—The chapter on Halsandhi in Tatsama Chandrika (by Sannidhanam Suryanarayana Sastri).
9. Compounds—Classification: (1) Sidda, (2) Sadhya, (3) Yat purusha, (4) Dwanda, (5) Bahuvrihi.

Prosody:

(1) Characteristics of Guru and Laghu, (2) (i) Matra ganas, (ii) Akshara ganas, (iii) Surya ganas, (iv) Indra ganas, (3) Yati and Prasa—Their characteristics, (4) Kanda, Thetageeti, Ataveladi, Sisa, Dwipada, Utpalamala, Champakamala, Sardula, Mattebha—Their characteristic features.

The characteristic features of the metres occuring in Text-books prescribed.

Poetics:

Upama, Rupaka, Utpreksha, Atisayokti, Swabhavokti, Ardhantaranyasya, Parikara, Virodhabhasa, Yadhasankhya.

(i) (*a*) Sabdalankara—Anuprasa—Yamaka—Muktapadagrasta (i) (*b*) Arthalamkara—Ullekha, Lokokti Slesha-Vyajasturi, Samasokti, Kavyalinga, Visama and Arthapatti, (ii) Kavyalakshana—Classification; Drisya, Sraya, Khanda Mahakavya and Kshudrakavya, (iii) Rasa—its characteristic features, (iv) Hero and Heroine—Their classification, (v) Kavyadoshas and Gunas.

Kannada

First two years:

Hours of Instruction:

Poetry and Applied Grammar—2 hours a week.

Prose 2 hours, Drama 1 hour; Composition and Translation 1 hour.

Scheme of Studies:

Poetry: 1200 lines of classical Poetry, 600 lines of mediaeval poetry and 600 lines of modern poetry.

Drama: One Drama written in classical style.

Old Prose: 60 pages of Old Prose.

Modern Prose: 2 text-books written in modern style for detailed study.

Grammar: Sandhi, Samasa, Tatsama, Tadbhava, Kridanta and Taddhitanta.

Paper I—Poetry and Grammar.

Paper II—Drama and Prose.

Third year: 2 hours a week:—

One hour will be devoted to Composition and Translation and one hour to Non-detailed Study (Non-detailed Text prescribed will be one bearing on Scientific subjects).

Scheme of Examination:

One paper on Non-detailed text, Translation and Composition.

Malayalam

Paper I.

Poetry: Classical:

(1) About 150 to 200 lines from the works of Niranam poets.

(2) About 400 lines from the works of Ezhuthachan or Cherusseri or one part of a Sandesa Kavya or about 100 stanzas from any of the Manipravala Kavyas or not more than 2 sargas from a Mahakavya.

(3) An Attakkatha.

(4) A classical drama.

(5) One Khanda Kavya.

(6) Poetical selections from the work of a modern poet or poets not exceeding 300 lines.

Detailed Prose:

(7) Prose text.

(8) Prose text.

Non-detailed Study:

(1) Two books—one of which may be a fiction.

(2) Original Composition.

(3) Translation from English to Malayalam.

Scheme of Examination for the Third Year Course:

A study of the outline of the History of Malayalam language and literature.

Arabic

The course shall comprise the study of the poetry of the period of Jahiliyyah and of the Early Islamic and Abbaside periods: the Quraan the Ahadith and short stories relating to the Arab life and culture; Grammar, translation and principal movements in the History of Arabic literature.

Persian

The course shall comprise the study of Mediaeval and Modern Persian Prose and Poetry, Grammar prosody translation and principal movements in the history of Persian life and literature.

Urdu

The course shall comprise the detailed and non-detailed study of Urdu literature both prose and poetry as developed during the period 1800-1950; Grammar, prosody, translation and principal movements in the History of the Urdu language and literature.

PART III—OPTIONAL SUBJECTS

B.A. DEGREE EXAMINATION

Group-A Subjects

BRANCH I—HISTORY MAIN

(1)

HISTORY OF INDIA—PAPER I.

The geographical background of Indian History—Sources of Indian History—The races of India.

The pre-historic period—The Palaeolithic, Neolithic and the Chalcolithic Ages; The Indus Civilization; Its nature, extent, date and general relation to (*a*) Sumerian (*b*) Tamil and (*c*) Vedic cultures. Dravidian India. The Aryans. The Vedic period and the Early Aryan settlements—Polity and Religion. The later Vedic period—Aryanisation of India—Its nature and extent.

(1) *The Early period*: 600 *B.C. to* 650 *A.D.*

(*a*) 600 B.C. to 350 B.C. Polity—Economic and Social life—Literature—Religious unrest—Rise of Jainism and Buddhism—Beginnings of Magadhan ascendancy and Tribal Republic Foreign incursions. Persian invasion and Alexanders' raid.

(*b*) (*i*) 350 B.C. to 300 A.D. The Mauryan Empire—Chandragupta, Bindusara and Asoka—Administration and Social life under the Mauryas—Decline of the Mauryas and the rise of the Sungas and the Kanvas—Literature and inscriptions—Art and Architecture.

(*ii*) *Foreign Contacts*: Indo-Greek Kingdoms—The Sakas and Pahlavas—The Kushans—Kanishka and the Saka Era—The Kshatrapas—Coins—Effects of foreign invasion on Religion and Saka Culture—Gandhara Art—Mahayana Buddhism. Other Religions—Vaishnavism and Saivism.

(*iii*) *South India*: The Satavahanas—Kharavela of Kalinga. Sangam literature. The Early Cholas, Pandyas and Cheras—Polity—Social life and Religion—Classical writers—Roman trade and commerce—Colonial and cultural expansion into South-East Asia.

(*c*) 300 A.D. to 650 A.D.—(*i*) *North India*: The Gupta empire. The Golden Age of the Guptas—The decline of the Guptas and the

coming of the Huns—Toramana and Mihiragula—the rise of the Vardhanas—Harshavardhana—Political, religious, economic and social conditions—Chinese pilgrim travellers—Literature and Art.

(*ii*) *South India*: Political condition of the Deccan and South India—Early Pallavas, their origin, history and contribution to South Indian culture.

(2) *The Mediaeval period*—650 *A.D.* to 1525 *A.D.*

(*a*) 650 A.D. to 1200 A.D.

(*i*) *North India*: The Rajputs—Their origin—The main Rajput dynasties. Rajput polity and social life. Nepal, Kashmir and Assam during the period.

(*ii*) *Deccan*—The Chalukyas of Badami—The Rashtrakutas—The Chalukyas of Kalyani and Vengi—The contributions of these dynasties to South Indian literature, art and culture—Social life and religion during the period.

(*iii*) *South India*: The Great Pallavas—Their political expansion—Their administration and contribution to South Indian culture—South Indian colonial and commercial enterprise under them—The imperial Cholas—Their political history—Relations with outside powers—Chola conquests beyond the seas—The decline of the Cholas—Chola administration—Religion, art and literature. Tamil expansion—The early and the later Pandyas and their exploits—The history of contemporary Cheras.

(*b*) 1200 A.D. to 1525 A.D.

(*i*) *Northern India*: The Muslim period. Rise and Spread of Islam—The Arab conquest of Sindh and its effects—Ghazni and Ghori—Stages in the Muslim conquest of Northern India. Causes of Muslim success. The Sultanate of Delhi—The Slave Sultans—The Khilji Rulers—Achievements of Alauddin Khilji—The Tughlaks—Muhammad Bin Tughlak's character and achievements—Firuz Tughlak—The Sayyids and the Lodis—Fall of the Delhi Sultanate—Administration under the Delhi Sultans—Economic and social conditions—Effects of the impact of Indian and Islamic cultures on Literature, Religion, Art and Architecture—Religious movements of the 13th and 14th centuries.

(*ii*) *The Deccan and South India*—(1) 1200 A.D. to 1335 A.D. The Yadhavas of Devagiri—The Kakatiyas of Warrangal—The Hoysalas of Dwarasamudra—Their contributions to art and literature—The later Cholas and Pandyas—Muslim conquest.

(2) 1335 A.D. to 1600 A.D. (*a*) The Bahmini Kingdom—Sources—Government and Society—The break-up of the Bahmini Kingdom and the five Sultanates of the Deccan. (*b*) Vijayanagar—Sources--Origin of the Kingdom. Rise, Growth and Decline. Relations with contemporary states, Muslim and Hindu--The battle of Talikota and after—The splendour of Vijayanagar—Administration, Economic and Social life, Art and Architecture—Religion and Literature.

(2)

HISTORY OF INDIA—PAPER II.

(*a*) *The Mughals*—Northern India on the eve of the Mughal conquest—Social, economic and political conditions—Babar—Humayun—Shershah Sur—His career—His political and administrative achievements. Akbar—Sources—His reconquest of the Mughal Kingdom—His military achievements—Territorial expansion of the Mughal Empire—His Rajput policy—Social and religious reforms—The Din Ilahi—Akbar's Deccan policy—Estimate of Akbar—Jehangir and Nurjehan—Shah Jehan—Foreign Travellers and their impressions—Fratricidal wars and the accession of Aurangazeb—Sources—His conquest—Religious policy and its consequences—Reaction against it—The opposition of the Marathas, Jats, Satnamis and the Sikhs—The Rajput Wars—Aurangazeb and the Deccan—Last days of Aurangazeb.

The Administrative system under the Mughals—Military organisation—Social, economic and religious conditions—Foreign notices—Growth of Hindi and Persian—Literature, Music, Painting and Architecture.

(*b*) (*i*) The Rise of the Sikhs—Sikhism as a religious and political institution. (*ii*) The rise of the Marathas— Sivaji—His career and achievements—Administration—Revenue and military system—the growth of the Maratha Empire from 1680-1761—Rule of the Peshwas—The third battle of Panipat and after. (*iii*) Later Mughals—Disintegration and decline of the Mughal Empire—Causes—Rise of Hyderabad and Oudh—Invasion of Nadir Shah and Ahmed Shah Abdali culminating in the third battle of Panipat. (*iv*) The breek-up of Vijayanagar and the Naik Kingdoms of Madura, Tanjore and Ginji.

(*c*) The coming of the Europeans—The rise and fall of the Portuguese—The Dutch enterprise—The English East India Company—The French—The Anglo-French Tangle in India. The establishment of the English supremacy in South India. The British conquest of Bengal—Robert Clive and his settlement—

Warren Hastings—His reforms. Impeachment of Warren Hastings—Charges examined. The Regulating Act of 1773 and Pitt's India Act of 1784—Their effects on British rule in India. Cornwallis—Revenue and judicial reforms. The Charter Act of 1793—Lord Wellesley and his subsidiary alliances—His forward policy—Lord Hastings—His policy of subordinate isolation—Reforms—Lord William Bentinck—His social and administrative legislation. The Charter Act of 1833 and its importance. Charles Metcalfe and his Press reforms—Lords Dalhousie—His character and administration—His doctrine of lapse and theory of Paramountcy—Mutiny of 1857—The Act of 1858—The end of Company's rule.

The Company's relations with Mysore, the Marathas, the Sikhs, Burma, Sind and Afghanistan.

(*d*) India under the Crown from 1858 A D. to 1947 A.D.

(i) Influence of European politics on British Indian Administration—North-West Frontier policy—British commercial expansion—Conquest of Burma.

(ii) The administrative policy of the Crown—Its growth—Impact of Western education and thought on Indian life and Culture—Social upsurge and economic conditions in the 19th and 20th Centuries—Birth of the Indian Nation. The Congress and the story of the struggle for freedom—The relations between the Indian States and the Crown.

(iii) Growth of representative institutions—The Minto-Morley Reforms—The effects of World War I and the Act of 1919—Provincial autonomy—The Government of India Act, 1935. The Second World War. The attainment of Indian Independence. The establishment of the Indian Republic.

***Books for Study*:**

1. Majumdar and Others: An Advanced History of India.
2. Sathianathaier, R.: A College Text-Book of Indian History—3 Volumes.
3. Nilakanta Sastri, K. A. : A History of India, 3 Parts.

***Books for Consultation*:**

1. Gertrude Sen: The Pageant of Indian History.
2. Basham : The Wonder that was India.
3. Ishwari Prasad: A Short History of Muslim Rule in India.
4. Roberts: British India.
5. Rawlinson, H. G.: India—A Cultural History.

SECTION I.

(3)

(i) The History of Greece and Rome up to 395 A.D.

Greece.

1. *The Geography of Greece*: Its relation to the Mediterranean and Asia Minor.

2. *Pre-historic Civilzation*: The Aegean civilization—The Myceanaean civilization.

3. *The Homeric Age*: The Trojan War. Political and social conditions.

4. *The City States*: Origin and development. Constitutional changes from monarchy to tyranny.

5. *Greek Colonization*: Causes—Relations between the founding city and the colony. The areas of colonization—Results.

6. *Early Greek Unity*: Race and language—The Homeric peoms—The Amphictionies—The Oracles—The Olympic games.

7. *The Early History of Argos and Sparta*: Pheidon and the Argive confederacy—The Institutions of Lycurgus—The social and economic classes—The Spartan constitution—The Peloponnesian Confederacy.

8. *The History of Athens* : Village communities of Attica—The four Ionic tribes and the social and economic classes—From monarchy to timocracy—Dracon—The reforms of Solon—The rise of Pisisratus—The fall of tyranny—The reforms of Clessthenes.

9. *The Persian Wars*: The capture of Lydia by Cyrus—Darius I—The Ionic Revolt—The battle of Marathon—Xerxes and the Second Persian War—Thermophylae—Salamis—Plataea—Mycale—Causes of the failure of the Persians.

10. *The Western Greeks*: Tyranny in the city states of Sicily. Gelon of Syracuse.

11. *Growth of the Athenian Empire*: Themistocles—The confederacy of Delos—Aristides—Cimon—Athens under Pericles.

12. *The Peloponnesian War*: The Athenian League and the Twenty Years' Peace. Corinth—Alcibiades and the battle of Mantinea. The Syracusan Expedition—The failure of Athens—The triumph of oligarchy—The restoration of democracy.

13. *The March of the Ten Thousand*: Xenophen, Significance of the Expedition.

14. *The Supremacy of Sparta*: Lysander and Agesilaus—The peace of Antalcidas—Battle of Haliartus.

15. *The Second Athenian Confederacy*: Pelopidas and Thebes—Membership and constitution of the confederacy—Relations with Persia—Failure of the confederacy. Athens in the 4th Century B.C.—Socrates, Plato, Aristotle.

16. *Syracuse before and after Dionysius I*: Relations with Carthage. The work of Dionysius—His successors—The battle of Crimisus.

17. *The Supremacy of Thebes*: Jason of Pherae—Epaminondas—Peace of Callias—The battle of Leuctra—The four Peloponnesian expeditions.

18. *The Supremacy of Macedonia*: Philip II—The peace of Philocrates—The battle of Chaeronea—The Congress of Corinth. Athens under Macedonia—Demosthenes.

19. *Alexander and the spread of Hellenism*: The conquest of Asia Minor—The conquest of Syria, Egypt, Babylonia, Persia, Media, Bactria and Sogdiana. The invasion of India. His policy of consolidation.

20. *The Greece after the death of Alexander*: The Hellenistic monarchies. The Achaean and Aetolian Leagues. The conquest of Greece by Rome.

21. *The Legacy of Greece*: Art and Architecture—Political thought—Early Greek Science. Philosophy. Drama and Poetry.

Rome.

1. The land of Italy—The peoples of Italy—The founding of Rome—The kings of Rome and the institutions of the regal period.

2. The political evoluion of Rome—From monarchy to aristocracy—The Institutions of the Republic—Patrician Government—The struggle between the Patricians and the Plebians—The new nobility—Roman citizenship.

3. The conquest of Italy—The Latin League—The Samnite wars—Settlement of Latium—The war with Pyrrhus—Consolidation of Roman rule in Italy. The Roman State—Colonies—Municipia—The Military system.

4. Roman expansion in the Mediterranean—Rome and Carthage—The Punic wars—The invasion of Italy by Hannibal—Battles of Trasimene and Cannae and Zama—The West under Roman rule—Sicily, Spain—The third Punic war.

5. Rome in the East—The Achaean and Aetolian Leagues—The first and second Macedonian wars—The war with Antiochus and the settlement of Western Asia—The third Macedonian war—The settlement of Greece—Roman protectorate in Asia.

6. Rome during the Great Wars—The ascendancy of the Senate—The Roman people—Effects of territorial expansion and material prosperity. The social evolution—The reforms of the Cracchi—The Jugurthine war—Marius—The social war—Cinna.

7. The aims of Sulla—His reforms—The revival of the Senate—The rising of Spartacus—The first Consulship of Pompey—Caesar, Cicero and Catiline—Coalition of Pompey, Caesar and Crassus—Caesar's command in Gaul—Pompey's consulship—The Civil War. Caesar in Gaul—Germany and Britain—Roman advance towards the Danube—The Mithradatic wars—The annexation of Syria.

8. The transition to Empire—Caesar and the Senate—The Civil War—Caesar in Spain—The Alexandrian war—The Dictatorship of Caesar—Caesar's rule—His reforms. Struggle for power after Caesar's death. The Scond Triumvirate—Octavius in the West—Battle of Actium.

9. The Principate—Its elements—Dyarchy—The empire under Augustus—Provincial Government.

Pax Romana—The reign of Trojan—The organization of Roman government under Hadrian—The Age of the Antonines—Diocletian—Emperor worship—Theodosius—Constantine—The battle of Hadrianople 378. Division of the Empire.

Books recommended:—

1. J. B. Bury: History of Greece.
2. Cary: History of Rome.
3. Grant: A History of Europe, Part I
4. Hayes and Moon: Ancient and Mediaeval History.

(4)

(ii) THE HISTORY OF EUROPE—395 A.D.—1500 A.D.

Europe in 395 A.D. The Roman Empire in the West, 395-476 A.D. The Invasion of Europe by the Germans—The Goths, Ostrogoths and the Visigoths—The Vandals —The Franks —Italy in the sixth century—The Eastern Empire—Justinian—Constructive forces of the Middle Ages—The Papacy; Islam; the Franks.

Charlemagne and the revival of the Empire. The break-up of the Carolingian Empire.

Europe in the ninth and tenth centuries—England and the Normans; the rise of the French Monarchy; Germany and Italy; Feudalism.

The growth in power of the Papacy.

The struggle between the Empire and the Papacy—The fall of the Hohen-Staufens and the great Interregnum—Monasticism—Benedict of Nursia; the Cluniac Reformation—The coming of the Friars; the Mediaeval Universities—The Crusades.

England—The growth of National Unity. The growth of Parliament.

France and the beginnings of the greatness of the Capetian Monarchy—Philip Augustus—St. Louis.

The Hundred Years War.
The Papacy and Philip IV of France. The Babylonish Captivity.
The growth of Mediaeval cities.
Germany and Italy in the 14th and 15th centuries.
The Rise of the Swiss Republic.
The Rise of Nation States—England; France; Spain.
The Byzantine Empire and the Ottoman Turks.
The Renaissance and the end of the Middle ages.

***Books recommended*:**

Grant: A History of Europe.
Carl Stephenson: Mediaeval History.
Hayes and Moon: Ancient and Mediaeval History.

(5)

(iii) HISTORY OF ISLAM—PAPER I.

(For Ancient Times to 1258 A.D.)

Geographical features of Arabia. Its physical divisions. Its climate. Its deserts. Its oases. Valleys that serve as trade route.

Inhabitants. Their racial affiliation and classification. The Ancient Arabs—The' Ad and Thamud.

Ancient Arabian Kingdoms. The Mineans, Sabaeans and Himyarites. Their civilization. Architecture. Sources of Information. Inscriptions—The Dam of Marib. The Abyssinians.

The Religion of Ancient Arabia: The Cult of the Moon. Planetary worship. Advent of Christianity—Spread of Judaism—Rivalries.

Petty N. Arabian states.

The Nabataeans. The Kingdom of Balmyrena. The Kingdom of Ghassan. The influence of Rome. Buffer State. Kingdom of Hira. Persian political influence. Numan bin Mundhir's Court. Its splendour and greatness.

Al Hijaz. Significance of the Jahiliyah. The supremacy of the Quaraysh. Growth of the City State of Makkah. The constitution. Economic life.

The religion of the Arabs of the Jahiliyya period. Their beliefs and practices. Their virtues—al Muruwwah. Their vices. Absence of national unity. The rivalries between North Arabians and South Arabians. Condition of Persian and Byzantine Empires.

Advent of Islam.

Teachings of the Prophet. His life and his reforms. Establishment of human brotherhood. Attitude towards other faiths. The Quran. The Traditions. An estimate of his achievements.

Early Caliphate.

The elective principle. Functions of the Caliph; Inaugural address. Abu Baker and Umar. Contacts with the Romans and the Persians. Speedy victories of the Arabs. Their causes. The Dhimmis. Expansion of Islam in Egypt, Syria and Persia. Political and administrative machinery set up by Umar I, Separation of judiciary and executive. System of taxation. The Agrarian reforms of Caliph Umar. Uthman and Ali. Schisms in Islam. Shias and the Kharijites. Settlements of Kufah and Basrah. Centres of learning.

The Umayyads.

The change over from the elective to hereditary system of succession. Transformation of the Caliphate into Kingship. Its consequences. Karbala. Its political and religious effects. Dominance of the Arab race. Administration. Departments of State. Reforms of Amir Muawiya and Abdul Malik. The Umayyad court life. Divi-

sion of Society. Adoption of foreign customs. The Harem system. Position of women in Society. Syedah Sukaina. Walid I. Conquests of Spain and Sindh. His interest in Architecture and Social amenities. Reforms of Umar II. Growth of learning. The Science of Tradition. The later Umayyads. The causes of the downfall of the Umayyads. The rise of Muhammad al Imam. The resurgence of the Persians —Abu Muslim al-Khurasani.

The change over to the Abbasides. Umayyads in Spain. Mansur, the great Abbasid. Bagdad. The influence of the Persians. The Barmakid dynasty of Wazirs. Sacremental character of the Caliphate. The departments of the State. The Shu'ubiyah Movement—Emergence of Persian nationalism. Age of translations. The Baitul Hikmat. Harun al Rashid and Mamum. Intellectual awakening. Arabs as leaders of thought. Medicine. Travelling clinics. Medical libraries. Astronomy and Mathematics. Arab Numerals, Geography. Historiography. General level of culture.

The later Abbasides.

The Abbasid Empire not co-extensive with Islam. Rise of independent states in the East and the West. The Buwyhids and the Saljuq Sultans. The Crusades. The Fatimids of Egypt. Their cultural activities. Al Azhar University of Cairo. Al Hakim the great Fatimid. His observatory at al Muqattam in Egypt. The rise of the Assassins. Hassan bin Sabbah, Nizamul Mulk, the Saljuq Wazir. His academy at Bagdad. Political upheavels. The causes of the downfall of the Abbasids. The factions at Bagdad. Luxury and laxity of morals. Hulaku Khan. Fall of Bagdad, 1258 (656 A.H.).

Books recommended:

(1) Amir Ali: Short History of the Saracens.
(2) Hitti: History of the Arabs.
(3) Salik: Early Heroes of Islam.
(4) Muir—Caliphate.
(5) Lane-Poole; Moors in Spain.
(6) Hell:—Arab Civilization.

SECTION II

(6)

(i) HISTORY OF AMERICA SINCE 1776.

(1) Latin America. Struggle for Independence—The Wars of Revolution, 1810-1824—Battle of Ayacuchae—The great Liberators—Course of self-Government in Latin America in the 10 republics and

the 3 colonies—The relations of Latin American States (*a*) among themselves, (*b*) with the United States and (*c*) with other countries, down to the end of World War II—The period after World War II.

(2) North America—United States. (*a*) History between 1763 and 1788—American Revolution—Declaration of Independence—The Constitutional Convention.

(*b*) History between 1778 and 1914: (i) The United States (1789 to 1861)—First Congress at New York—Economic Developments—Political Parties—The Louisiana Purchase—War of 1812 and the Treaty of Ghent—The Munroe Doctrine—Territorial expansion—The Origin Trail—The annexation of Texas—War with Maxico—The acquisition of California—Slavery—The Compromise of 1850—Abraham Lincoln as the 16th President.

(ii) The Civil War (1861 to 1865)—Political and Social Aspects of the War Period.

(iii) The United States (1865 to 1914) Assassination of Lincoln—14th Amendment—The Basic Reconstruction Act—The Sherman Anti-Trust Law—The Spanish American War—Treaty of Peace signed at Paris—The Federal Reserve Bank Act—Woodrow Wilson and the Foreign Policy of the United States—U.S. Declaration of War on Germany.

(*c*) British North America: (i) Passage of the Canada Act—Exploration of the West—War between Great Britain and United States—Rebellion in Upper and Lower Canada—Durham's Report—The Union Act—British North America Act—Purchase of North-West Territories from the Old Hudson Bay Company—Red River Rebellion.

(ii) Newfoundland—Grant of Responsible Government—Bait Act—Bank failure and insolvency—Financial—Depression—Sir Robert Bond and Sir Edward P. Morris.

(*d*) Alaska—Early Explorations—Vitus Baring—Thomas Cook—The Russian-American Fur Company—The United States Purchase of Alaska—Settlement of the Boundary Dispute—Alaska given territorial status.

History after 1914: (i) The United States—War declared on Germany—Treaty of Versailles—Washington Conference—Stock Market Crash—Clark Memorandum on the Munroe Doctrine—Franklin D. Roosevelt and the New Deal—Agriculture, Banking Home financing, Relief, Securities. Labour Legislation—Foreign policies of the New Deal—The United States and the Second World War.

(ii) The Dominion of Canada—Canada between the two World Wars—Canada during World War II.

(iii) New Foundland—Loses its status as a dominion—The Royal Commission and its recommendations—Union with Canada.

Books recommended:

1. Robertson: History of Latin American Nations.
2. Nevins and Commager: A Short History of the United States.
3. Andre Maurois: A New History of the United States.
4. Graham: Canada.

(7)

(ii) MODERN ASIAN HISTORY FROM 1850 TO THE PRESENT DAY.

(1) *History of the Near East and Middle East.*

(*a*) *The Ottoman Empire and Turkey in Asia*, 1876-1914: Abdul Hamid II—Constitution of 1876—Armenian Revolutionary movement—The rise and growth of the Young Turk movement—Revolt of the First Army Corps—Mohammed V's Constitutional Revision, 1909—Proclamation of the Republic—Kemmal Ata Turk.

(*b*) *Persia*: Russian conquest of Merv. Sixty year oil concession to W. K. D'Arcy—The Anglo-Russian entente, 1907—Persia since Raza Shah Pahalavi.

(*c*) *Afghanistan*, 1850-76: Second Afghan War; Abdul Rahman; The Penjdeh Incident; The Durant Agreement; Habibullah Khan, 1907. Anglo-Russian entente and Afghanistan—Aminullah—Afghanistan since 1929.

(*d*) *Middle East and World War I*: The Mesopotamian Campaign, 1914-1916. The Sykes-Picot Agreement—Arab Revolt in the Hejas—Proclamation of Hejas—The collapse of Turkey—The Treaty of Severes—The rise of Hejas as an independent power—French Mandate over Syria—British Mandate over Mesopotamia and Palestine. Syria since 1918—Palestine and Trans-Jordania since 1916—Saudi Arabia, Yemen and Iraq and the Hashmite Dynasty since 1919.

(2) *History of the Far East.*

(*a*) Japan 1868-1912—The Meiji period—The constitution of 1898—The Sino-Japanese War, 1902—Anglo-Japanese alliance, 1904-1905. The Russo-Japanese War—The Thisoperiod, 1912-1926—Japan

during World War I. The Shona period —Japan and World War II—Japan since allied occupation.

(*b*) Since 1850. The growth of diplomatic intercourse with the West. The Sino-Japanese War over Korea. The Far-Eastern Triplis, 1896—Treaty of Alliance between Russia and China—The threatened partition of China—The Boxer outbreak 1900—China under Yuan Shiki, 1912—The beginning of the Republic of China—China during World War I—The unification of China under Kuommintang—New China since Mao-Tse-Tung.

(*c*) The lesser lands of Asia since 1850—Tibet—Sinkiang—Mongolia — Korea—Eastern—Siberia—Indo-China—Siam—Burma—Ceylon—The Malay Peninsula—The East Indies and Philippines.

Books Recommended:

Kroger: Kemalist Turkey and the Middle East.

Foster: The Making of Modern Iraq.

Brocklemann: History of Islamic Peoples.

Heath: The World in the Twentieth Century, Part VI, Chapters 24, 45 and 46.

Vinacke: A Hitsory of the Far-East in Modern times.

Van Mook: The States of Democracy in South-East Asia.

Owen and Eleanor Lattimoore: The Making of modern China.

Porter: The Rise of Japan, the Rise of a Modern Power.

(8)

(iii) HISTORY OF EUROPE.

(From 1500 to the present day.)

Introduction—Europe at the close of the middle ages.

Renaissance—Voyages of Discovery—Rise of national monarchies—France, England, Spain and Portugal.

France under Louis XI—Ferdinand and Isabella of Spain—Charles VIII's invasion of Italy—Franco-Spanish Rivalry—The Italian Wars—Emperor Charles V.

The Reformation—Charles V and Germany—Luther and Calvin—The Counter-Reformation—Philip II of Spain—His work in Spain—The Battle of Lepanto—The Dutch war of Independence—French Religious wars—Philip II and England—The Armada—Decline of Spain.

France under Henry IV—Richelieu—Mazarin—The Thirty Years' war—Treaties of Westphalia and the Pyrenees—Louis—XIV —His policy and Government—His foreign policy—War of the Spanish Succession—Peace of Utrecht.

Rise and decline of Sweden—Gustavus Adolphus—Charles XII —Rise of Russia—Peter the Great—His character and policy—Baltic wars—Treaty of Nystadt—Turkey Siege of—Vienna Sobieski of Poland—Catherine the Great—Partition of Poland—Russia's Wars with Turkey—Treatise of Kutchuk-Kainardji and Carlowitz—Decline of Turkey.

Rise of Prussia—The 'Great Elector'—Frederick the Great—Maria Theresa—War of the Austrian Succession—The Diplomatic Revolution—The Seven Years' War—Anglo-French Colonial Rivalry.

Age of the 'Enlightened Despots'—Joseph II.

France under Louis XV—Louis XVI—The French Revolution—Its course and results—French Revolutionary Wars—Napoleon —His work in France—Napoleonic War—Fall of Napoleon—Congress of Vienna—The Holy Alliance—Metternich.

Liberalism and Nationalism—War of Greek Independence—Liberation of South America—Munroe Doctrine—Revolution of 1830—Revolution of 1848—Second Empire in France—Unification of Italy—Unification of Germany—Policy of Bismark—Austro-Prussian War—Franco-Prussian War—The German Empire—Third Republic in France.

The Eastern Question—The Crimean War—The Russo-Turkish War—Congress of Berlin—The Balkan States—Young Turks—Balkan Wars, 1912-1913.

Germany between 1870 and 1914—The Triple Alliance—Britain and Germany—Russo-Japanese War—The Triple Entente Pan-Slavism—German Influence in Tureky—Armed Peace—Austria-Hungary under Francis Joseph—Sarejevo—First World War—Course and results—Peace Treaties of Versailles and Lausanne—League of Nations—Its work and failure—Locarno Pact.

Fascism in Italy—Nazism in Germany—Other Dictators—Kemal Pasha—Japanese aggression on China—Rise of the Axis—Munich—Second World War—Its course and results—U.N.O.

Books for Study: Grant: History of Europe—Parts 3 & 4 (Latest Edition).

Hayes: Political and Social History of Europe, 1936.

Books for consultation:

Seignobos—The Rise of European Civilization, 1944.

Grant & Temperley: Europe in the 19th and 20th Centuries, Sixth edition, 1952.

SECTION III

(9)

(i) HISTORY OF ISLAM.

Paper II.

Minor Dynasties after 1258. Kingdom of Granada. Almohavids of North Africa. Arabs in Sicily. Norman-Arab kings. Mamlukes of Egypt—Hamdanids of Syria. Persia under the Safavids.

The Ottoman Empire—Sulaiman the Magnificient. Turks in Europe. Causes and results of European Renaissance—Abolition of the Caliphate in 1924. Its causes and effects. The Turkish Republic and the rise of Modern National Muslim States: Morocco, Egypt, Syria, Arabia, Iraq, Mandatory powers. The resurgence of Israil. The Arab League.

Books Recommended:

1. Brocklemann: History of Islamic Peoples.
2. P. K. Hitti: History of Syria.
3. Everleigh: Ottoman Empire (abridged).
4. Sykes: History of Persia.
5. Lane-Poole: Muhammadan Dynasties.

Books for Consultation (for both Papers):

1. Amir Ali: Spirit of Islam.
2. Lane-Poole: Saladin.
3. Lavy: Sociology of Islam—2 volumes.
4. J. Zaidan: Ummayyads and Abbasids.
5. T. W. Arnold: The Legacy of Islam.
6. Gibb: Islam and the West.

(10)

(ii) Political and Constitutional History of England—Upto 1603.

Political:

Pre-Norman Period—Roman-Britain—Anglo-Saxon Conquest—Heptarchy—Conversion of the English—West Saxon Supremacy—Danish Conquest.

Norman Conquest—Norman Kings upto Stephen—Relations with the Barons—Relations with the Church.

Constitutional:

Features of the British Constitution—Anglo-Saxon Polity—Constitutional importance of the Norman Conquest—Growth of Feudalism—Norman Monarchy and its strength—Reforms of Henry I.

Political:

The Plantagenet Period—Henry II's Empire—His quarrel with Becket—John—His quarrel with the Pope and the Barons—Henry III—Barons' wars—Simon de Montfort.

Constitutional:

Reforms of Henry II—Magna Carta and its importance—Baronial opposition under Henry III—Provisions of Oxford.

Political:

Edward I—Conquest of Wales—Wars with Scotland—Edward II—Bannockburn—Mediaeval Culture—The Church—The Monasteries—The Friars—Universities—The Mediaeval City and Guild—The Mediaeval manor.

Constitutional:

Laws of Edward I—Origin and Development of Parilament—"Model" Parliament—Confirmatio Cartarum—Edward II—The Lords Ordainers Revolution of 1327.

Political:

Edward III—The Hunderd Years' War—Richard II—Peasant's Revolt—Economic and Social changes—Wycliffe and the Lollard Movement. Deposition of Richard II—The Lancastrians—Renewal of the Hundred Years' war—End of the war and its results—Wars of the Roses. The Yorkists.

Constitutional:

Development of Parliament under Edward III—The "Good" Parliament—Impeachment—Richard II's attempt to set up despotism

—Lords Appellants—Revolution of 1399—The Lancastrian monarchy—Parliament under the Lancastrians—Breakdown of Government and its causes—Strong monarchy of the Yorkists.

Political:

The Renaissance—Voyages of Discovery—Henry VII—His commercial and foreign policy—Henry VIII—Wolsey—Thomas Cromwell —The Reformation—Edward VI—Catholic reaction under Mary—Elizabethan Church Settlement—Importance of the reign of Elizabeth —Her foreign policy—Mary, Queen of Scots—Elizabethan seamen—The Armada—Conquest of Ireland—Social and Economic conditions—Trading Companies—Poor Law—Literature.

Constitutional

Tudor dictatorship—The Council—Star Chamber and other courts—Tudors and Parliament—Privileges of Parliament—Constitutional results of the Reformation—Local Government—The Justices of the Peace.

Books for Study—

Keith Feiling: History of England.

Adams: Constitutional History of England (Rev. Ed., 1935).

Books for Consultation—

Trevelyan: History of England (2nd Ed., 1938).

Tasswell-Langmead: English Constitutional History (10th Ed., 1947).

(II)

(*iii*) POLITICAL AND CONSTITUTIONAL HISTORY OF ENGLAND FROM 1603 TO THE PRESENT DAY.

Political: Introduction England at the end of the Tudor Period.

The Stuart Period—James I—His character—His religious and foreign policy—Charles I—His character—His Government—The Civil War—Its results.

Constitutional:

Relations between James I and Parliament—Revival of Impeachment—Clash between Charles I and Parliament—The petition of Right—The Eleven Years' Tyranny—The Long Parliament and its work—Revolution of 1649—The Commonwealth—Its constitutional experiments.

Political:

Oliver Cromwell's character and internal policy—His foreign policy—End of the Commonwealth—The Restoration—The Clarendon

Code—Wars with Holland—James II—His character and religious policy—Monmouth's rebellion—Revolution of 1688—Colonial and Commercial expansion under the Stuarts.

Constitutional:

Character of the Restoration—Charles II's Declaration of Indulgence—Test Act Habeas Corpus Act—Exclusion Bill—Whigs and Tories—James II's declaration of Indulgence—His use of the Dispensing power—The Seven Bishops' case—Nature and results of the Revolution of 1688—Bill of Rights—Act of Settlement.

Political:

William III's foreign policy—War of the English Succession—National Debt and the Bank of England—Anne—Union with Scotland—War of the Spanish Succession—Literature—Accession of George I—The Fifteen—Walpole's domestic and foreign policy—George II—The war of the Austrian Succession—The Forty-five—The Seven Years' War—Policy of Pitt, the Elder.

Constitutional:

Growth of party system and Cabinet Government—Importance of Walpole's Ministry—The Whig Oliarchy—George III—His character and policy—Fall of the Whigs—Lord North—Wilkes.

Political:

War of the American Independence—Policy of Pitt the Younger—Act of Union with Ireland—Industrial and Agrarian Revolutions—Humanitarian Movement—Wesley and the Methodists—The French Revolution and its influence on Britain—Nelson—Trafalgar—Wellington—Peninsular War—Waterloo—Congress of Vienna—Howard and Jail Reform—Wilberforce and abolition of Slavery.

Constitutional:

George IV and William IV—Substitution of influence for power—Victoria and the Cabinet-Movement for Parliamentary Reform—Reform Acts of 1832, 1867 and 1884-1885—Representation of the People's Acts of 1918 and 1928—Relations between the House of Commons and House of Lords—Parliament Act of 1911—Subsequent changes—Reorganisation of the Judiciary—Reform of Local Government.

Political:

Victorian Age—Problems of Industry—Factory Acts—Trade Developments—Protection versus Free Trade—Religion—Literature—Science—Growth of Canada and Australia—Transfer of India to

the Crown—Boer War—Imperialism—Relations with Russia—Crimean War—Gladstone and Disraeli—Chamberlain and Tariff Reform—Edward VII—Anglo-French entente—The Triple Alliance and the Triple Entente—The Irish Question—Home Rule Bill 1911-1914—The First World War—Britain's part in the War—Lloyd George—Russian Revolution—Wilson and American Intervention—Collapse of Germany—Peace Treaties—Effects of the War—League of Nations—Dictatorships in Europe—Events leading to the Second World War—The Second World War and Britain's part in it—Churchill—Roosevelt and American intervention—Defeat of Italy and Germany—Effects of the War—U N.O.

Constitutional:

Constitutional results of the two World Wars—War cabinet—Relations between the Dominions and Britain—The Irish Free State. Statute of Westminster—Irish Republic—Abdication of Edward VIII—Beveridge Report and Social Security—The Civil Service—Development of Public Rights—Religious freedom—Rule of Law and its limitations.

Books for Study:

Keth Feiling: History of England.

Adams: Constitution History of England (Rev. Ed., 1935).

Books for Consultation:

Trevelyan: History of England (2nd Ed., 1938).

Tasswell-Langmead: English Constitutional History (10th Ed., 1947).

BRANCH II—POLITICS MAIN

(12)

(a) (i) Political Theory (Including a Text).

Political Theory:

Political Science—Its scope and methods—Relations between Politics and other Social Sciences.

Chief elements and characteristics of the State—Its relation to Nation, Society, Government.

Theories of the origin of the State, speculative and historical.

Sovereignty *de jure* and *de facto* and its location in the State considered in relation to various types of existing constitutions. The Pluralistic view of sovereignty.

The end of the State. Individualist collectivist and liberal democratic views of the purpose of the State.

Law, its nature, sources and sanctions—Law and Morality.

Liberty. Civil liberty. Rights and duties of citizenship. Safeguards of liberty. Law and Liberty.

Equality. Legal, political, economic and social equality in the modern State.

Forms of Government. Democracy as a form of Government, as an order of Society, as an Industrial condition and as a moral and spiritual principle. The nature of public opinion. Dictatorship, personal and party.

Unitary and Federal States. Federation and Confederation. Conditions of Federalism.

The Constitution, its essential ingredients. Classification of Constitutions. Constitutional amendment. Political conventions, their use and value.

The theory of the Separation of Powers and the extent of its application to modern constitutions.

Prescribed Text: One of the following:

1. Machiavelli: The Prince Tr. by Ricci (World's Classics).
2. Locke: Second Treatise on Civil Government.
3. Burke: Reflections on the French Revolution.
4. Mill, J. S.: Representative Government.
5. Selections from Aquinas—to be prescribed.
6. Selections from the Arthasastra—to be prescribed.
7. Selections from the Kural—to be prescribed.

Books Recommended:

Soltau: Introduction to Politics.

Lord: Principles of Politics.

Strong: Modern Political Constitutions.

(13)

(*ii*) THE EVOLUTION OF GOVERNMENT.

Earliest human governments. The empires of Egypt, Mesopotamia and China, The organization of ancient bureaucracies.

Tribal Polity. Indo-European tribal organization in the West and the East.

The City-States of Greece and Rome. The evolution of government in Greece and nations of cyclical change. Colonial and imperial government.

Barbarian monarchies in Europe. The influence of the organization of the Church. Development of administrative organization in Carolingian and Anglo-Norman Governments.

Indian polity, ancient and mediaeval—Kingship—The concept of Dharma—The administration—Mauryan and Gupta Governments —Government in South India—The Chola Administrative system.

The pluralist society of the Middle Ages in Europe. Feudalism and the supremacy of law. The Estates—Mediaeval constitutionalism and representative assemblies in Span, France, England and Scotland. Mediaeval cities—Italy, France and the Hansa towns.

Rise of the modern nation state in sixteenth century—Europe —Consolidation of nations—Absolute monarchies.

The French Revolution and the spread of the principles of nationality and regalitarian democracy. Church and State after the Reformation.

The Liberal Democratic State of the nineteenth century. Collectivist and totalitarian states in Europe between World War I and World War II.

Federalism—Ancient federal unions—the Netherlands—Switzerland—the U.S.A—Federalism in the Commonwealth. Latin American Federations.

International organisation—The Pax Romana, the Mediaeval unity of Europe, Indian conception of Suzeranity and mandalas—Post Reformation efforts at European Unity—The League of Nations— —The United Nations.

The Contemporary State—Democratic Centralism—People's Democracy—The Welfare State.

Books recommended:

Sidgwick: Development of European Polity.

Altekar: State and Government in Ancient India.

Schuman: World Politics.

(14)

(b) (1) MODERN GOVERNMENTS.

Constitutions, written and unwritten—conventions and usages—federal and unitary constitutions—separation of powers—rule of law and administrative law—constitutional amendment.

The constitutions of India, the United Kingdom, Eire, the U.S.A., Canada, France, Switzerland, the U.S S.R., Japan and Australia will be studied in detail with reference to:

1. The mode of amendment.
2. The guaranteed rights of the citizen.
3. The expressed and/or implicit social ideas of the constitution.
4. The distribution of power between the Centre and the Units.
5. The composition and functions of the formal and real executives.
6. The organization and powers of the Legislatures, Central and Local.
7. The procedures and methods of business of the legislatures.
8. The franchise and the electoral system.
9. Political parties.
10. The Administration and the Public Services including methods of recruitment and control.
11. The structure and duties of the Judiciary.
12. The role of minorities, interest and pressure groups.

Books recommended:

Carter: Ranney & Herz: Major Foreign Powers.
Ghosh: The Government of the Swiss Republic.
Marx (Ed.): Modern Foreign Governments.
Gledhill: The Constitution of the Republic of India.
Ogg and Ray: Introduction to American Government.
Brogan: The U.S.A.

(15)

(2) PUBLIC ADMINISTRATION

1. The scope and nature of Public Administration—Relation of the administration to the legislature, the executive and the judiciary—Municipal administration in town and city.

2. Organisation of departments—Powers and liabilities of administrative officials—Organization for different Governmental functions—Line, staff and auxiliary services—

Relations within a department and between departments—Office procedure—Administration of finances and records—Accounts and audit

3. Public personnel administration—History of the civil service—Personnel Agencies and Civil Service Commissions—Recruitment examination and promotion—Service rating—Discipline and employed organization—Compensation and retirement.

4. Government planning and research—Develompent of plans and programmes in war and peace—Publicity and Public relations—The Administrative organisation in India.

Books recommended:

1. White: Introduction to the Study of Public Administration.
2. Morstein Marx(Ed.): Elements of Public Administration.
3. Gladden: Public Administration.
4. Ruthnaswamy: Public Administration.
5. Joshi: Indian Administration.

(16)

(3) STATE AND GOVERNMENT IN ANCIENT INDIA

1. The works on Dharma Sastra and polity as sources of our knowledge.
2. Literary and epigraphical sources of our knowledge of Government in ancient India.
3. Indian theories of the origin and function of the State.
4. Legal and social status, rights and duties of individuals and classes.
5. Indian social organization as a pattern of pluralism.
6. Limits of royal authority.
7. Kingship in theory and practice.
8. The role of the administration: The organization of the executive.
9. Deliberative Assemblies, Central, Local and Professional.
10. Guilds and Corporate authorities.
11. Civil Administrative Organisation. Evolution from age to age.
12. Military Organization.
13. Financial Organizations.
14. Regional and District Government: The role of local bodies.
15. The Administration of Justice.
16. Centralism and Bureaucracy.

Books recommended:

1. Beni Prasad: The State in Ancient India.
2. Altekar: State and Government in Ancient India.
3. Dikshitar: Hindu Administrative Institutions.
4. Mahalingam: South Indian Polity.
5. Iyengar, S. K.: Evolution of Administrative Institutions in South India.

(17)

(4) INTERNATIONAL RELATIONS AND DIPLOMACY.

1. The State and the State System. Evolution of sovereign States in Europe and Asia—Balance of Power.
2. Nationalism and Sovereignty. Growth of nationalism in Europe in the 19th and in Asia in the 20th centuries. Political autonomy and national self-sufficiency.
3. Foreign affairs and the concept of National security. The mechanism of management of foreign affairs. Diplomacy as instrument of national policy.
4. War as instrument of national policy. Economic organisation as part of national policy.
5. Management of inter-state relations—Diplomatic negotiations—Collective Security—Conferences—Permanent organisations of consultation—Open and Secret Diplomacy.
6. History of international relations 1900-1945—World War I. The—Versailles settlement—Economic and political re-adjustments of the inter-war period. The expansion of international relations to cover the entire world—European and Asian politics leading to World War II—Regionalism, Internationalism and Nationalism after World War II.
7. From the League of Nations to the U.N. Forces making for international government and forces operating against it.
8. The foreign policies during and after World War II of the United Kingdom, the U.S.S.R., the U.S.A, France, Germany, Japan and China.

9. Regionalism in Asia and Africa—Indian foreign policy since 1947.

10. The problems of world community—Political, economic and social. The U.N. and its Agencies.

Books recommended:

Schuman: World Politics.
Gathorne Hardy: History of International Relations.
Palmer & Perkins: International Relations.
Nicolson: The Evolution of Diplomatic Method.

(18)

(5) CONSTITUTIONAL AND ADMINISTRATIVE HISTORY OF MODERN INDIA (FROM 1600)

The system of government and administration prevailing in India when the East India Company obtained the Diwani of Bengal. Development of English government in the Presidencies. The government of the East India Company—The Regulating Act. The Charter Acts. Transfer of power to the Crown.

India under the British Crown—Development of the administration and the beginning of decentralisation. Local Self-Government. The evolution of legislature till 1909. The Minto-Morley constitution. The Montagu-Chelmsford Report and Dyarchy. Provincial autonomy and the Government of India Act, 1935. The Government of Indian States: the administrative and political implications of Paramountcy. Political agitation from 1857 to 1947. The Indian Independence Act, 1947. The New Constitution. The structure of government at the centre and in the States. The Departments of government at Delhi and Madras. Their organization and functions. The composition and working of the Legislatures. Political parties and their organization. Cabinet government in India. Planning and the problems of administration. Constitutional change, formal amendment and development of conventions.

N.B. Illustrative documents to be prescribed.

Books recommended:

Ilbert: Government of India.
Muir: The Making of British India.
Keith: Constitutional History of India.
Palande: The Indian Constitution.

BRANCH III—SOCIAL SCIENCE

(19)

Syllabus in Philosophy of Religion

1. *Philosophy of Religion*: Nature, scope and method. Relation of religion to Science, Theology and Philosophy. Value of a philosophical study of religion.

2. *Origin and Development of Religion*: The urge for religion in man. Primitive forms of religion; tribal, national and universal religion. Characteristics of developed religion. Religion and Culture.

3. *The Psychology of Religion*: The facts of religious experience. Intellectual, moral and emotional attitudes in religion. Mystic experience.

4. *Religious knowledge and its validity*: Revelation, Reason and Intuition. Proof for the existence of God. Examination of the proofs. Best proof is soul-sight of God.

5. *Metaphysical problems*: The nature of reality. God and His attributes. God and the Absolute. Immanence and Transcendence. God as the home of the values of Truth. Goodness and Beauty. Problem of Evil. Relation of God and the individual. Immortality and future life.

6. *Art, Morality and Religion*: The place of myths and rites. Personal and institutional religion.

7. *The goal of religion and the means*: God—realisation. Moksha. Karma Yoga, Bhakti Yoga, Jnana Yoga. Prayer, devotion and Grace.

Bibliography: Relevant portions in:

1. George Galloway: Philosophy of Religion.
2. Harold Hoffding: The Philosophy of Religion and Western Thought.
3. S. Radhakrishnan: Eastern Religions and Western Thought.
4. P. N. Srinivasachari: Mysticism.
5. W. K. Wright: Philosophy of Religion.
6. Narada Bhakti Sutras (Ramakrishna Math, Madras).
7. Joseph Gaer: How the Great Religions Began (A Signet Book).

(60)

Jurisprudence and Indian Constitutional Law
Syllabus will be prescribed later.

(61)

General Principles of Contracts and Torts.

Syllabus will be prescribed later.

(20)

II. (ii) (*b*) SYLLABUS FOR SOCIAL PSYCHOLOGY

Stand point and scope: Social Psychology and its relation to other sciences.

Personality in Social and Cultural Settings: Social life at pre-human levels. Inter-play of culture and personality. Modes of social interaction. Emergence of self-social types of personality. Cultural influences on thought process and content.

Function of stero types in myths and ideologies.

Dominance and leadership in human and sub-human groups.

Qualities of a leader and leader selection. Mass behaviour. Psychological factors and mechanisms of crowd formation. Types and behaviour of crowds. Public opinion—Its nature. Rumour. News. Propaganda.

Primary and secondary groups.

Sociometry.

Social Conflicts: Prejudices. Revolution. War.

References: Kimbal Young: Handbook of Social Psychology
W.J.W. Sprott: Social Psychology.

(21)

II. (iii) (a) SOCIAL ANTHROPOLOGY

Anthropology in relation to other social sciences.

Analysis of Institutions—Marriage, Family and Kinship.

House and clean-kinship structure and organisation.

Social structure—Primary civilizations—Food gatherers—Bilateral — Social structure — Secondary Civilizations — Food producers—plant cultivation—Matrilineal organisations, Nomadic Herdsman—Patriarchal Organisations—Higher Hunters—Mixed type—clan totemism Distribution of each type—the world over structural differences of societies and their comparison. Custom and Morality; Social Control—folk lore, Mythology and religion. Religion and Social Organisation in their interdependance.

(22)

II. (iii) (b) CULTURAL ANTHROPOLOGY

Anthropological definition of culture.

Group and Personality in relation to culture.

Co-operation, Competition and Conflict.

Economics and Anthropology.

Environment as the field in which culture operates.

Diffusion, convergence and independent inventions.

Culture areas, Culture Centres, Culture Traits and Culture.

Complexes. Their distribution throughout the world.

Social contacts and culture change.

Land Tenure—The sociological background to land ownership.

Growth of money sense.

Trade and barter.

An outline of linguistic, religious and culture historic groups the world over, with special reference to India.

A detailed study of *two* prescribed monographs *on one Indian* and *one non-Indian tribe or community.*

Books:

R. Linston: The Study of Man (1946, D. Appleton—Century Co., N.Y.)

C. K. M. Kluckhohn—Mirror of Man (1949, Mcgraw Hill Book Co., Inc., N.Y., U.S.A.)

Ruth Benedict: Patterns of Culture (1936, George Routledge & Sons, Ltd., London).

M. J. Herskovits: Economic Anthropology.

Ogburn and Nimkoff: Sociology.

J. E. Lips: The Origin of Things.

Evans-Pritchard: Social Anthropology.

Ehrenfels, U. R.: Mother-right in India (1941, Osmania University Series, Hyderabad (Dn.), Oxford University Press, Madras, Bombay.)

Piddington: Introduction to Social Anthropology, Vol. I.

Beals, R. and Hoijer, H.: Anthropology.

Hoebel, A.E: Man in the Primitive World.

Lowie, R. H.: An Introduction to Cultural Anthropology (1934, Farrar & Rinehart, Inc., N.Y.)

Radcliffe Bromn, A. R.: The Andaman Islanders (Cambridge, 1922).

(23)

General Economics

(1) Scope and Method of Economics—Nature of Economic Laws—Fundamental concepts.

(2) Consumption—Wants and their nature—The Law of Diminishing Marginal Utility—Demand—Elasticity of Demand—Consumer's Surplus.

(3) Production—Factors of Production and their combination—Laws of Returns—The organization of production—Division of labour—Location of Industry—Large scale production.

(4) Economic Organization—Capitalism and Socialism—Mixed Economy—Types of production organization—partnership, joint stock companies, co-operative organisation, State enterprise—Industrial combinations.

(5) Value—The analysis of Supply and Demand—Value under perfect competition—Market value and Normal value—Joint demand and joint supply—Monopoly value—Monopolistic competition.

(6) Distribution—General theory of distribution—Theories of wages, interest, rent and profit—The national income of India.

(7) Money and Banking—Functions of money—Kinds of money—The Quantity Theory of Money—The gold standard—Paper money—Credit—Instruments of credit—Banks, commercial, industrial and land mortgage—The Central Bank and its functions with special reference to India—Components of the Indian money market.

(8) International Trade—The theory of comparative costs—Balance of Trade and balance of payments—Indian Balance of Trade and payments—Free Trade and Protection—Foreign exchanges—The Purchasing Power Parity Theory.

(9) Public Finance—Public expenditure and sources of public revenue—General principles of taxation—Revenue and Expenditure in India—Public Debt and its redemption.

(10) Planning Economic development—India's Five-Year Plans.

Books Recommended:

1. Benham: Economics.
2. Cairncross: Text-Book of Economics.
3. Banerjee, P.: A Study of Indian Economics (Rev. Ed., 1954).

(24)

III. (ii) (b) SOCIAL GEOGRAPHY OF INDIA

Social Geography of India—Definition and Scope.

Physical and Biological background:

(a) The land, structure, relief and soil.

(b) Climate, the dominant role of the monsoons, the regional and seasonal incidence of rainfall.

(c) Plant cover—Forests—exploitation—Forest as a source of wealth.

Resources and their Uses:

Land: Classification of land—forests and their utilisation—arable land—land use, problems connected with types of farming, practices, tenures and soil erosion.

Crop-Distribution:

(*a*) effect of relief, soil and climate.
Traditional Practices.

(*b*) exotic plants.

(*c*) *Cereals*: Distribution, production and consumption studied in relation to regional dietetic practices.

(*d*) Supplementary food crops, beverages.

(*e*) Industrial crops—Sugar, Jute, Tobacco and Cotton.
(Special attention to be paid to self-sufficiency).

Live Stock: Distribution—bovine population standard in relation to fodder supply; social beliefs and food habits—meat, milk and milk products—Self-sufficiency of India.

Other Animals.

Power and Mineral Resources: Power resources and Economic minerals—distribution, exploitation and uses.

Industry: (*a*) Major industries.
(*b*) Minor industries.
(*c*) Cottage industries.
(*d*) Location and Labour supply.
(*e*) Social effects of Industrialisation.

Trade and Transport:

II. People of India:

(*a*) Classification, races, tribes etc.
Indian culture as the basis of homogenity of Indian people.

(*b*) Population Numbers—Distribution, rural and urban population, growth of cities, population, growth and trends.

(*c*) Social Problems of India as related to basic economic factors—Living standards, Literacy, Health and Hygiene Distribution of diseases.

Reference Books:

Spate: India and Pakistan.

Sharma: Location of Industries.

R.K. Mukherjee: Food for four hundred millions.

Howard: Agricultural testament.

Indian Census Reports: 1931 and 1951.

Thomas: India's Basic Industries.

Gadgil: Industrial development.

Anstey: Economic Development of India.

Government of India: Planning Commission—First Five-year Plan, Progress Report for 1953-54.

(25)

III. (iii) SOCIOLOGY—Paper I.

Scope of Sociology—relation to other social science such as Anthropology, Psychology and History. Elements of structure. Meaning of "Social Structure". Social order and social change. Analysis and classification of social groups. Social controls—Law, custom, morals and religion. Private property—its development from the earliest times. Class and status. Ethnocentrism.

Books:

Labierre: Sociology.
Forde: Habitat, Economy and Society.
Kroeber: Anthropology.
Lewie: Social Organisation.
Firth: Human types.
R. Brown: Structure and Functions in Primitive Society.

Murdock: Social Structure.

Nadel: Foundations of Social Anthropology.

Lowie: Cultural Anthropology.

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SOCIOLOGY—Paper II

The Indian Castes and Tribes—Their economy, sociology and religious beliefs, understood against the background of general culture—history—Distribution, geography—environment, linguistic affinities.

Tribal Structure:

Contacts with civilization and their effects.
Ethnocentrism in the contact between Highlanders and plains people.
Village communities in India.
Tribal rehabilitation.
Economic life of tribes in South India.

Books:

Aiyappan—Iravas and Culture Change.
Altekar—Village Communities in Western India.
Hutton—Caste in India.
Ehrenfels—Kadar of Cochin.
Ghurye—Caste and Class in India.
Majumdar—Fortunes of Primitive Tribes.

BRANCH IV—ECONOMICS MAIN

(27)

(i) PRINCIPLES OF ECONOMICS.

1. Nature, scope and methods of Economics—Economic Laws—Fundamental concepts.

Consumption:

2. Law of Diminishing Marginal Utility (Laws of Substitution Indifference curves)—Consumer's surplus—Demand—Law of Demand—Elasticity of Demand—The Demand Curve.

3. Supply—Factors of Production. Theories of Population—Laws of Returns—The Supply Curve. Forms of economic organization—Functions of the entrepreneur—Division of Labour, Large scale production—Localisation of industry—The optimum firm, Capitalism, Socialism and Co-operation.

4. Price Mechanism—Market. Perfect and Imperfect competition—Monopoly—speculation, value—Theories of Value—Equilibrium of Demand and Supply—Market value and normal value.

5. Value under imperfect competition and monopoly—Product Differentiation and selling costs—Value under joint supply and joint demand, composite supply and composite demand.

6. Pricing of Factors of Production, the national income—Measurement of national income—Inequalities of income.

Wages—Labour as a factor of production—Theories of Wages—Differences in Wages—Trade Unions and Wages—Minimum Wages.

Interest—Nature and necessity of interest—Theories of interest—Long term and short term rates of interest—Interest and employment.

Rent—The Ricardian Theory of Rent—Customary and competitive rent—Quasi-rent—Rent as a surplus—Transfer earnings.

Profits—Gross profits and net profits—Theories of profit.

8. Main Trends in the Development of Economic Thought—Mercantilists—Physiocrats — Adam — Smith—Alfred Marshall — J. M. Keynes.

Books Recommended:

1. Meyers: Elements of Modern Economics.
2. Benham: Economics (Latest Edition).
3. J. R. Hicks: The Social Frame work (Second Edition).
4. Alexander Gray: Development of Economic Doctrines.

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(ii) CURRENCY, BANKING, INTERNATIONAL TRADE AND PUBLIC FINANCE.

(*a*) The functions and Kinds of money. Monetary standard, Monometalism, Bimatalism—Different types of gold standard—Paper standard—Principles and Systems of Note issue—Value of money and its measurements—Index numbers—The Quantity Theory of Money—Inflation and Deflation—Methods of stabilising the value of money—The trade cycle.

Foreign exchanges—The gold points—Purchasing power parity theory—Exchange controls—The International Monetary Fund.

(*b*) Evolution of modern banking—The general structure and methods of commercial banking—Assets and Liabilities of commercial banks—Bank balance sheets—The creation of credit—The cheque system and the clearing house—Investment banking—Mixed banking—State regulation of banking—The World Bank.

The Central Bank, nature and functions—Types of Central Banks—Methods of credit control.

The Money Market, main constituents—Bills of Exchange and discount houses.

(*c*) Domestic trade and International trade—The theory of comparative costs—The terms of trade—Balance of trade and balance of payments—Free trade *versus* Protection—Regulation of international trade, tariffs, quotes, exchange control, etc.

(*d*) The scope of public finance—Growth of public expenditure, its importance—Items of public revenue—Distribution of the burden of taxation—Principles of taxation—Direct and Indirect taxes, their main varieties—Public Debt—Distribution of revenues between the Centre and the States in a Federation.

Books Recommended:

1. G. Crowther: An Outline of Money (Rev. Ed.)
2. Sayers: Modern Banking.
3. Whale: International Trade.
4. Dalton: Public Finance.

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(*iii*) INDIAN ECONOMIC PROBLEMS.

(1) Survey of India's physical environment and natural resources.

(2) The economic transition in India.

(3) Population—Growth and distribution.

(4) National Income of India—Its size and variations.

(5) Agriculture, main features—Land tenures, history and current trends—Size of holdings, subdivision and fragmentation—Land reform—Types of farming, subsistance, mixed, co-operative and collective—Agricultural methods and technique—Irrigation—Animal Husbandry—Problems of marketing—Financing of agriculture—Co-operation, growth and structure of the movement, current trends—Agricultural Planning.

(6) Problems of Indian industry—Industrial evolution in India—Location of industries—Organization of Large-scale industries, cotton textiles, iron and steel, jute, cement, etc.—Small-scale industries—Cottage industries—Financing of industries, the Managing Agency system—External finance—Industrial policy—Planning for industrial development.

(7) Labour problems—Trade unions, industrial disputes—History of labour legislation in India—Minimum wages—Labour welfare—Social security.

(8) Transport—History of railway development—Road—Rail co-ordination—Other forms of transport.

(9) Trade and Tariffs—Main trends in India's foreign trade—Commercial policy—Discriminating protection—Tariff policy in recent years—Import and export controls—Features of internal trade.

(10) Currency and Banking—History of Indian currency—Monetary standards in India—India's foreign exchange—India and the International Monetary Fund.

Indigenous banking—Development of joint stock banking—The Reserve Bank of India—The Indian money market.

(11) Public Finance—Main heads of revenue and expenditure of the Union and State Governments—Historical evolution—The Indian Public Debt.

(12) State and Economic Policy—Nationalisation—Mixed Economy—Community Projects—The Five-Year Plans.

Books Recommended:

1. P. Banerji: A Study of Indian Economics (Rev. Ed., 1954)

2. Jather and Beri: Indian Economics, Volumes I and II.

3. Wadia and Merchant: Our Economic Problems.

4. Malhotra, D. K: History and Problems of Indian Currency.

5. R. Balakrishna: Studies in Indian Economic Problems.

(30)

(*iv*) MODERN ECONOMIC DEVELOPMENT OF U.K., U.S.A. AND U.S.S.R.

1. *U.K.*—Economic conditions in England on the eve of the 18th century—The Industrial Revolution—The Agrarian Revolution—Developments in Transport—The Working Class Movement—Growth of Social Security—Industrial and Commercial Policy in the 19th and 20th Centuries—Development of Banking and Finance.

2. *U.S.A.*—Struggle for commercial and economic independence—The effects of the Civil War—The advent of the Industrial Revolution—Transformation from an agricultural into a powerful industrial country—Growth of combinations—Development of transport—Revolution in agricultural methods and technique—Immigration and tariff policies—The New Deal—Effects of the Second World War on the economic position of U.S.A.

3. *U.S.S.R.*—The history of the economic transformation of Russia from a mediaeval to a modern State—Effects of the Great War on Russian economy—The Revolution—The Soviet system—Planned economy and industrial development—Lessons of the Russians experiment.

Books Recommended:

1. L. C. A. Knowles: Industrial and Commercial Revolutions in Great Britain during the 19th Century.
2. Southgate: Economic History of England.
3. Faulkener: American Economic History.
4. Dobb: Russian Economic Development since the Revolution.

BRANCH V—GEOGRAPHY MAIN.

Paper I.—Principles of Human Geography.
Paper II.—Physical Basis of Geography.
Paper III.—(*a*) Regional Geography of the World; and
* (*b*) Regional Geography of India.
Paper IV.—Practical Geography and Practical Test.
(100 marks each).

* India denotes the Union of India only.

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Paper I.—PRINCIPLES OF HUMAN GEOGRAPHY.

I. Scope of Human Geography. Determinism *Vs*. Possibilism.
II. Population and Settlements (Detailed Study).

(*a*) Distribution of Man.

(i) On the basis of cultural elements—Race, language and religion—Group contacts and consequences.

(ii) On the basis of total numbers—Theories.

(*b*) Patterns of distribution (Grouping).

Settlement Patterns.

Population Trends—Growth of Population—The different theories.

(*c*) Population Movements, past and present.

III. Mode of life (Systematic Treatment).

Culture and Civilisation—Levels of Culture—The concept of sequent occupance.

Note: Mode of life to be studied in relation to the levels of culture discussing in detail the different elements; House types, dress, food habits; arts and crafts, manners and customs, and rhythm of life.

Reference Books:

Brunhes: Human Geography.
Vidal de la Blache: Principles of Human Geography.
Daryll Forde: Habitat, Economy and Society.
Huntington: Human Habitat and Main springs of Civilisation.
Huntington: Principles of Human Geography.
Semple: Influences of Geographic environment.
Benn: Foundations of Human Geography.
Markham: Climate and Energy of Nations.
Moodie: Principles of Human Geography.
Carr Saunders: Population Problems.
Chandrasekhar: Population and Food Supply.
Boas: Race, language and culture (Macmillan).
Thompson: Population Problems (McGraw Hill).

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Paper II.—PHYSICAL BASIS OF GEOGRAPHY.

1. *Lithosphere*:

The earth—Origin—Distribution of land and sea—Permanency of Ocean basins.

General classification of the materials of the earth's crust.

Major rock types, formation and scenic features associated with them—Volcanism and crustal movements—Process of denudation and deposition—Work of rivers, underground water, Glaciers, Wind and Waves. Evolution of Land Forms—Cycle Concept.

2. *Atmosphere*:

Distribution of Land and Sea—The elements and factors of climate and weather—Pressure—Distribution—Changes—Causes. Planetary, Seasonal and Local winds. Temperature, insolation, Horizontal and Vertical distribution of temperature. Precipitation and Humidity.

Weather types. Cyclones and Anti-cyclones.

Climate—Classifications—Major climatic regions of the world.

Climatic cycles.

3. *Hydrosphere*:

Submarine topography, temperature—Salinity—Circulation of Ocean waters—Causes and effects—Waves and tides—Economic Resources of the Ocean—Marine Deposits.

Reference Books:

Woodridge and Morgan: Physical Basis of Geography, Geomorphology.
Steers: The Unstable Earth
Holmes: Physical Geology, Part I
Salisbury: Physiography.
Longwell, Knopf and Flint: Physical Geology, Part I.
Hobbs: Earth features and their meaning.
Kendrew: Climatology, Climates of the Continents.
Miller: Climatology.
Murreay: Oceans.
Oommaney: Ocean.
Jenkins: Oceanography.
Johnstone: Oceanography.
Lobeck: Geomorphology.
Lake: Physical Geography—2nd edition.
Trewartha: An Introduction to Weather and Climate.
Kimble: Weather.
Petterson: Introduction to Meteorology.

Paper III.—(*a*) REGIONAL GEOGRAPHY OF THE WORLD.

Part I.—General Study of Asia, Europe and North America.

Discoveries. Expeditions, Explorations.

Structure and Relief—Climate—Soils and Vegetation—Agriculture and Industries—Trade and Transport.

Population—Natural Regions.

Part II.—A Comparative Study of the Southern Continents.

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(*b*) REGIONAL GEOGRAPHY OF INDIA.

(India denotes Union of India only)

I. Physical Setting and Resources:

Space Relations.
Structure, Relief and Drainage.
Climate, Rainfall in relation to famine and irrigation.
Natural vegetation and soil.
Mineral Resources and Production.

II. Cultural Features:

Population.
Agriculture.
Animal Husbandry and Fishing.
Manufacturing.
Communications and Trade.

III. Regional Study:

Study of the Natural Regions of India.

Books for Reference:

Lyde: Continent of Asia.
Lyde: Continent of Europe.
Rodwell Jones: North America.
G. B. Cressey: Foundations of China.
G. B. Cressey: Asia, Lands and Peoples.
Fitzgerald: Africa.
Stamp: Africa.
Gregory and Shave: U.S.S.R.

Stamp: Asia.
Spate: India and Pakistan.
Huntington and Valkenburg: Europe.
Unstead: World Survey.
Shackleton: Europe.
Shanahan: S. America.
Griffith Taylor: Australia.
Suggate : Australia.
Stamp and Beaver: British Isles.
Trewartha: Japan.
Government of India : First Five-Year Plan.
Government of Inda: Progress Report of First Five-Year Plan.

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Paper IV.—*PRACTICAL GEOGRAPHY AND PRACTICAL TEST.

(*i*) Latitude, Longitude and Time—Elementary observations and problems.

(*ii*) Simple Surveying and Contouring with chain, prismatis compass, plane-table, clinometer, Dumpy Level Theodolite.

(*iii*) Graphic Method of Construction, properties and uses of the following projections:

Zenithal (Polar cases only). Simple conical with one and two standard parallels. Polyconic, Bonne's, Cylindrical equal area, equi-distant, Mercator, Sinusoidal, Mollweide, Interrupted Mollweide and Recentered Sinusoidal and International.

(*iv*) Preliminary Cartographic exercises on area, enlargement, reduction and combination of maps.

(i) Representation of relief and of typical land forms.

(ii) Study and interpretation of (*a*) Survey of India, topographic sheets, (*b*) British O.S. Maps and (*c*) U.S. Maps.

(*v*) (i) Use of weather instruments.

(ii) Study and Interpretation of Indian Daily Weather Report.

(*vi*) Cartographical diagrams and distribution maps, land use maps.

(*vii*) Instructional Tours lasting for about ten days for a geographic study of the home region and the surrounding region.

Reference Books:

Jameson and Ormsby: Mathematical Geography, Volume I.
Raisz: Cartography.
Hinks: Maps and Survey.
Singh and Dutt: Practical Geography.
Steers: Map Projections.
Kellaway: Map Projections.
Merrimann: Map Projections.
R.N. Singh: Map Work and Practical Geography.
D. Sylvester: Maps and Landscape.
Monkhouse: Maps and Diagrams.
Birch: Maps.
Carter: Land forms and Life.
Alice Garnett: Geographical Interpretation of Topographical maps with Atlas.
A. L. Higgins: Elementary Surveying.
H. M. S. O.: Manual of Map Reading.
*20 marks to be apart for Note-books.
50 marks for Practical Geography (Sections I, IV, V and VI) and 30 marks for Practical Test (Sections II and III)

BRANCH VI—PHILOSOPHY MAIN

(36)

1. (A) EUROPEAN LOGIC AND THEORY OF KNOWLEDGE.

A. Logic:—

(a) *Deduction*:

Definition and scope of Logic; Relation of Logic to other sciences with special reference to Psychology. Is Logic a science or an art or both? Material of Logic. Logic and language.

Unit of thought. Judgment and its parts. Word, name and term. Extension and intension of terms.

Logical definition, division and classification; Logical definition—Purpose—Rules—Testing. Logical division—Purpose—Rules—Testing. Dichotomy. Relation between definition and division. Nature of propositions—Categorical, hypothetical and disjunctive. Quality and quantity. Reduction of sentences to logical forms. Distribution of terms.

Inference: Mediate and immediate—Logical opposition; conversion, obversion, contraposition, inversion and obverted converse.

Nature of syllogism—Rules, figure and mood. Special rules of the figures. Determination of valid moods. Testing of Syllogisms.

Hypothetical propositions and arguments. Disjunctive arguments and propositions. Relation between categorical, hypothetical and disjunctive propositions and arguments. A *fortiori* arguments.

Fallacies.

(b) *Induction:*

The problem of Induction. Types of Induction—Enumerative and scientific. Assumptions of Induction. Stages in the Inductive process. Observation and Explanation.

Simple Enumeration—Statistics and Calculation of Chances.

Determination of casual relations ; Cause : Popular and Scientific views. Plurality of causes and Intermixure of effects. Mill's experimental methods. Method of Agreement. Method of Difference. Joint Method, Method of Concomittant Variations and the Method of Residues. Relation between the Methods ; their value. Place of elimination in Induction.

Analogy : Nature, value and limitations.

Hypothesis : Reasoning from a hypothesis. Formation of hypothesis. Requirement of a good hypothesis. Verification and proof of hypothesis. Deductive and hypothetical methods.

Relation between deduction and induction.

Fallacies of induction : Non-observation, mal-observation, False Cause, post hoc ergo popter, Unsound Analogy, Barren Hypothesis and Hasty generalisation.

B. Theory of Knowledge:

General introduction. The problem of Epistemology. Relation of theory of knowledge to theory of reality.

An *outline treatment* of theories of reality. Realism, Idealism and Pragmatism—Their basic ideas and their relation to the problem of knowledge. Examination of these theories.

Theories of truth based on them: Copy theory, Correspondence theory, Coherence theory ; critical estimate of these theories.

Bibliography:

1. Creighton and Smart : An Introductory Text Book of Logic.
2. Welton and Monahan : Intermediate Logic (Revised by Mellone).
3. T. M. P. Mahadevan : Fundamentals of Logic.
4. R. Ramanujachari : Handbook of Logic.
5. Latta and Macbeath : Elements of Logic.
6. Bosanquet : Essentials of Logic—Lectures I to IV.
7. James : Pragmatism.
8. Pratt : Pragmatism.
9. Joad : Introduction to Modern Philosophy.
10. W. Carr : Problem of Truth (People's Book Series).
11. Patrick : Introduction to Philosophy (Relevant Chapters)

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I. (B) SYLLABUS IN INDIAN LOGIC.

1. Nyaya : Tarka Sastra or Pramana Sastra—Distinction of *prama* and *bhrama*. Factors in knowledge : *Pramatr*, *Pramaeya*, *Pramiti* and *Pramana*. The meaning of Pramana and its function in knowing process.

2. Definition : Freedom from the faults of *ativyapti*, *avyapti* and *asambhava*.

3. Distinction of *yathartha jnana* and *ayathartha jnana*. Means of *yathartha jnana* : *Pratyaksha*, *Anumana*, *Upamana* and *Sabda*.

Pratyaksha : Definition of pratyaksha. Relation of self, mind, sense organ and object—Different kinds of sense — object contact : *samyoga*, *samyukta*, *samavaya* and *samyukta-samaveta-samavaya*, *samavaya* and *viseshanata*.

4. Kinds of perception : Intermediate and determinate ; *laukika*, *manasa* and *yougika* perceptions.

5. *Anumana* : Definition. Kinds : *Purvavat*, *Seshavat* and *Samanyatodrshta*.

Pararttha and *Svarttha* anumanas.

Pararttha anumana or Syllogism : its 5 members. *Pratijna Hetu*, *Udaharana*, *Upamaya* and *Nigamana*. Abridgement sometimes into 3 members.

Meaning of *Sadya, Paksha, Hetu* and *Vyapti* ; of *Sapaksha* and *Vipaksha* ; of anvaya and vyatireka. Inference distinguished into *Anvyavyatireki, kevatanvayi* and *kevalavyatircki.*

6. Inductive process in *Savartthanumana.* Importance of *bhuyodarshana* and *avyabhicharita sahacarya.* Importance of negative instance—sapaksha and vipaksha.

7. Upamana : Two factors involved in it. Relation of *Samjna* and *Samjni.* Sadrssya jnana. Comparison and contrast with analogy.

8. Sabda : Explanation of *apta vakya—abhida* and *lakshana.* Dependence of meaning of sentence on *akanksha, yogyata, sannidhi* and *tatparyajnana.* Distinction of *vidhi, nisheda* and *arttha vada.*

9. Fallacies : *savyabhichari, viruddha, satpratipaksha, asiddha* and *badhita.* Their explanation and examples. Identification of arguments and detection of fallacies.

10. *Nyaya theory of Truth and Error* : Pragmatic test of truth. Realism in Nyaya, that reality is external to thought. Repudiation of subjectivism. *Anyatthakhyati* theory of error.

Bibliography :

1. Annambhatta : Tarka Sangraha (Tr. by Athalye).
2. S. Kuppuswami Sastri : Tarka Sangraha : A Primer of Indian Logic.
3. S. Parthasarathi : Tarka Sangraha.
4. S. Radhakrishnan : Indian Philosophy, Vol. II—Chapter on Nyaya.
5. Keith : Indian Logic and Atomism.
6. S. C. Chatterjee : The Nyaya Theory of Knowledge.

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2. SYLLABUS IN ETHICS.

1. Scope and methods of Ethics. Relation to other sciences.

2. The beginning and growth of morality. Customary morality. Conscience. Systematic reflection.

3. Analysis of moral judgment. Motive and intention. Character and conduct. The Moral Self.

4. Types of Ethical Theory.
   (*a*) Hedonism : Ancient and Modern.
   (*b*) Rationalism : Kant.

(*c*) Evolutionism : Huxley, Spencer, Darwin.

(*d*) Idealism : Green and Bradley.

(*e*) Pragmatism.

(*f*) Marxism.

5. The Right and the Good—Casuistry. The concept of moral values.

6. Evil and Sin. Punishment. Theories of punishment.

7. Moral Institutions : The Family. The State.

8. Rights and Duties—Dharma as a moral concept, Svadharma.

9. Freedom and necessity. The doctrine of Karma. The Ethics of nishkama karma.

10. Morality and religion.

Bibliography :

1. J. S. Mackenzie : Manual of Ethics : (Books I and II and Chapters 2, 6 and 7 of Book III).

2 A Seth : Ethical Principles.

3. J. Muirhead : Elements of Ethics.

4. Dewy and Tufts : Ethics.

5. William Lilly : Ethics (Methuen).

6. Ewing : Ethics (Teach Yourself Series).

7. Thomas English Hill : Contemporary Ethical Theories (Chaps. VIII, IX and X) (Macmillan & Co., N.Y., 1950).

8. P. N. Srinivasachari : The Ethical Philosophy of the Gita.

9. T. M. P. Mahadevan : Outlines of Hinduism (Chapters V and VI).

(39)

3. SYLLABUS IN OUTLINES OF INDIAN PHILOSOPHY.

1. The Vedas—Religous ideas. Ritual—Philosophical concepts.

2. The Upanishads. Central teaching. Concept of Brahman-Atman. Nature of the World : 2 views ; Cosmic and Acosmic. Soul, its nature and destiny.

3. The Bhagvad Gita. Idea of God. Spiritual disciplines. Ethics and religion. Concept of the perfect man.

4. Rise of the systems : Non-Vedic and Vedic.

5. Indian Materialism : Charvaka.

6. Jainism : Syadvada, Categories. Soul, its nature and destiny.

7. Buddhism : Philosophical implications. Kshanika vada and anatma vada. The Four Noble Truths. Ehics. Conception of Nirvana and Mahayana and Hinayana.

8. Nyaya-Vaiseshika : Pramanas, Categories. Theory of causation. Atomism. God. Soul and its destiny.

9. Sankhya-Yoga. Prakriti and Purusha, Satkaryavada. Theory of Evolution. Eight limbs of Yoga. Idea of God.

10. Purva Mimamsa. Authority of the Veda and the concept of Dharma.

11. Schools of Vedanta :

(*a*) Advaita : Absolute and God. Doctrine of Maya-Avidya-Vivarta Vada. Jiva. The doctrine of non-difference. Means of Moksha. Jivanmukti.

(*b*) Visishtadvaita : Distinction from Advaita. Nature of Brahman, Jiva and Prapancha. Ethics, religion and moksha.

(*c*) Dvaita : Nature of God, Soul and matter. Ethics and religion.

(*d*) Saiva Sidhanta : God, Soul and Matter ; the theory of malas. Stages in spiritual growth.

Bibliography:

1. Max. Muller : Six Systems of Indian Philosophy.
2. M. Hiriyanna : Essentials of Indian Philosophy.
3. Datta and Chaterjee : Introduction to Indian Philosophy.
4. S. Radhakrishnan (Editor): History of Philosophy, Eastern and Western, Vol. I, Relevant Chapters.
5. P. N. Srinivasachari : The Ethical Philosophy of the Gita.

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4. SYLLABUS IN OUTLINES OF EUROPEAN PHILOSOPHY FROM DESCARTES TO KANT.

1. Beginnings of Modern European Philosophy.

2. Continental Rationalism :

Descartes: The Method of Doubt. Dualism of Mind and Matter. Proofs for the existence of God, *Occasionalism* ; *Spinoza*. Substance, Attribute, Mode. The principle that all determination is negation. Nature, God, Substance. Necessity, Freedom and Teleology. Intel-

lectual love of God; *Leibnitz*: Theory of Monads. Pre-established harmony. Non-contradiction and Sufficient Reason. Best of all possible worlds.

3. *British Empiricism*: *Locke*: The way of Ideas. Substance. Primary and Secondary qualities.

Berkeley: Refutation of matter. World of Spirit. God.

Hume: Criticism of ideas of Substance, Self, Causality, etc. Phenomenalism and Scepticism.

4. *Kant*: The problem of critical philosophy. Is metaphysical knowledge possible ? The Teaching of the dialectic. Principle of morality. God, Freedom and Immortality.

Bibliography: Relevant portions in:

1. Thilly : History of Philosophy.
2. Rogers : History of Philosophy.
3. Will Durant: Story of Philosophy.
4. Bertrand Russell : History of Western Philosophy.
5. Weber and Perry: History of European Philosophy.

BRANCH VII—PSYCHOLOGY MAIN

(41)

I. GENERAL PSYCHOLOGY.

1. Scope, Methods and Branches.

2. The Nervous System :

Structure of the nerves. Nerve connections. The Stimulus—Response mechanism. Reflex action. The Brain, Localisation of cortical function. Co-ordination. Inhibition and facilitation. Interaction of individual and environment.

3. Sensations:

General nature and characteristics. The mechanism of sensations. Cutaneous, Olfactory, Gustatory, Kinesthetic, Organic and Static senses. Structure of the eye and the ear. Theories of Hearing and Vision. Weber-Fechner Law.

4. Attention:

The span of attention. Factors determining attention. Physical adjustment during attention. Fluctuation. Varieties. Distraction.

Perception:

Relation to sensation. Characteristics. Perception of Space and Time. Influence of past experience and set. Illusion. Social perception.

6. The process of thinking:

Concept, Reasoning, Autistic thinking, Creative thinking.

7. Intelligence:

Theories of intelligence. Intelligence tests. Measurement of Intelligence. Mental Age and I. Q. Use of intelligence tests.

8. Emotion:

Difference between feeling and emotion. The influence of inclination and learning on emotional behaviour. Facial and postural reactions. Organic States and emotion. Central and perepheral theories. How emotions are defined and distinguished from one another.

9. Learning:

What is learning? Animal learning. The curve of learning. Kinds of learning—Trial and error, Imitations, Observation, conditioned reflex. Negative adaptation; Insight; transfer of training, Habit.

10. Memory:

Learning. Distributed Vs. massed learning. Part Vs. whole learning. Relearning. Retention. Recall. Recognition. Forgetting. Retroactive inhibition. Memory training. Recent experiments in memory.

11. Motivation and Behaviour:

Physiological and psychological needs (instincts and motives) Conflict of motives.

12. Heredity and Environment :

Carriers of heredity. Chromosomes and genes. Relative importance of heredity and environment. Maturation. Experimental approach. Study of twins.

13. Imagination:

Play. Day dreams. Fantasy. Dreams-Freud's theory of dream. Invention and criticism. Appreciation of imaginative art. Types of imagery.

14. Personality:

Methods of investigating personality. Biological influence on personality. Influence of environment. Types of personality. Normal and Abnormal Personality. Dissociation.

Reference : Psychology: N. L. Munn. Houghton, Mifflin Co., Boston, U.S.A.

Psychology : Woodworth and Marquis—Latest edition. Methuen, London.

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2. EXPERIMENTAL PSYCHOLOGY AND ELEMENTARY STATISTICS

Experimental Psychology.

1. Description and Report:

(*a*) Observation and Description.
(*b*) Aussage Experiment.
Accuracy and Reliability of Report.

2. Reflex Action:

(*a*) Knee-jerk reflex and reinforcement.
(*b*) Control of winking reflex.

3. Sensory and Motor Processes:

(*a*) Laws of colour mixture.
(*b*) Cutaneous sensations.
(*c*) Some phenomena of audition.
(*d*) Galton's Questionnaire.
(*e*) Motor tests.
(*f*) Fatigue.

4. Attention:

(*a*) Concentration of attention.
(*b*) Negative control of attention

5. Suggestion and rumour:

(*a*) Progressive weights.
(*b*) Illusion of warmth.
(*c*) Suggestive questions.
(*d*) Social transmission of a story.

6. Perception:

(*a*) Individual differences in perception.
(*b*) Muller-Lyer Illusion.
(*c*) Horizontal Vertical Illusion.
(*d*) Size-Weight Illusion.
(*e*) Illusion of movement.
(*f*) Reversible perspective.
(*g*) Selection and grouping.

7. Reaction Time:

(*a*) Simple reaction.
(*b*) Choice reaction.
(*c*) Associative reaction.

8. Learning:

(*a*) Learning of a motor pattern.
(*b*) Effect of punishment on learning.
(*c*) Insight learning.
(*d*) Conditioned responses.

9. Association:

(*a*) Free Association—Word list method.
(*b*) Free Association—Continuous method.
(*c*) Controlled Association.
(*d*) Association and strength of motives.
(*e*) Association and crime detection.

10. Feeling and Emotion:

(*a*) Affective value of colours.
(*b*) Judging Emotional expressions.
(*c*) Bodily changes
(*d*) Analysis of effective aspects of experience (materials—various bottles containing substances for smell and taste, stimuli, salt, sugar, quinine, vinegar, etc.)

11. Memory and Intelligence:

(*a*) Memory span.
(*b*) Memory for names and faces.
(*c*) Rote, meaningful and logical material.
(*d*) Tests of retention.

(*e*) Performance tests.
(*f*) Binet Scale.
(*g*) Group Verbal tests.
(*h*) Group Non-verbal tests.
(*i*) Tests for mental projections

12. Imagination:

(*a*) Ink blot tests.
(*b*) Word building tests.
(*c*) Sentence construction test.
(*d*) Vividness of imagery.

13. Thinking and reasoning:

(*a*) Development of concepts.
(*b*) Controlled association.
(*c*) Wire puzzles.
(*d*) Syllogistic reasoning.

14. Judging Human Nature from external signs:—

(*a*) Distinguishing criminals and non-criminals from photographs.
(*b*) Estimating intelligence from photographs.

15. Personality:

(*a*) Introversion and extroversion.
(*b*) Ascendence—Submission.
(*c*) Pressey X-o tests.
(*d*) Laughter Reaction tests.
(*e*) Psycho-neurotic questionnaire.

16. Personal Applications :

(*a*) Vocational guidance—Interest blanks.
(*b*) Vocational guidance—tests.

Reference : Collins and Drewer : Laboratory Guide in Experimental Psychology.

Collins and Drewer: Experimental Psychology.

Munn: A Laboratory Guide in General Experimental Psychology.

Valentine: Introduction to Experimental Psychology.

Kuppuswamy: Elementary Experimental Psychology.

Kadir and Yoganarasimiah: A Guide to experiments in Psychology.

Elementary Statistics.

1. Frequency distribution:

Class interval, its frequencies and limits. Graphic representation of frequency distribution.

2. Measures of Central Tendency:

Arithmetic mean, of grouped and ungrouped data; short method of calculating mean; the median of grouped and ungrouped data; the mode; when to employ mean; median and mode; the geometric mean, the harmonic mean.

3. Measures of Variability:

Range; the semi-quartile range; average deviation of grouped and ungrouped data; the standard deviation of grouped and ungrouped data. Uses of different measures of distribution. Skewness and its relationship to measures of central tendency. Co-efficient of skewness.

4. Cumulative Distribution:

Types of cumulative frequencies and plotting cumulative distribution curves; use of ogive, centile norms.

5. The Normal Distribution Curve:

Nature of the normal curve; practical applications of the normal curve, areas under a normal curve.

6. Correlation:

Measuring of correlation. How to compute a co-efficient of correlation—Product moment and Rank difference. Scattergram. Size and reliability of correlation co-efficients.

7. Reliability and Significance of Statistics:

Population and samples; sampling distribution; confidence limits of estimates; reliability of an estimated mean; reliability of an estimated standard deviation; significance of difference between two means.

References: Statistics for the Social Sciences by T. G. Connolly and W. Sluckin.

Tippet L. H. C.—Statistics.

(43)

3. Child and Adolescent Psychology

Child Psychology:

1. The Methods of Child Psychology:
   Biographical, Observational, Experimental and Psycho-analytical.

2. The Child at Birth:

   The physique of new born infants. Sensory and motor responses of the new born. Babinski Reflex. Sleeping. Emotional behaviour. Crying.

3. Motor Development:

   Holding the head; sitting; prehension and grasping; crawling; creeping and walking. Maturation and learning and their relation to the development of walking. Relationship of age of walking to other variables. Race and sex.

4. Development of Speech:

   Patterns of speech development; comprehension; building vocabulary; forming sentences and pronunciation.

5. Emotional Development:

   Characteristics of childhood emotions. Common emotional patterns of childhood—Fear, Anger, Jealousy, Joy, Pleasure, Affection and Curiosity.

6. Social Development:

   The problem of social development; origin of social behaviour. Choice of companions.

7. Play:

   Theories of Children's Play. Kinds of play—Free and spontaneous play; Make-believe; Constructive play; Collecting; Games, sports and amusements.

8. Problems of Childhood:

   Thumbsucking. Nail biting. Enuresis. Physical handicaps Shyness. Left-handedness. Temper Tantrums. Speech disorders. Stuttering and stammering. Feeble-mindedness.

9. Mental Hygiene of Chidren:

Attitude of parents towards children developing a feeling of security.

References: J. W. Naggie: Psychology of the Child. The Ronald Co., N. Y., U.S.A.

A. T. Jersild: Child Psychology, Prentice Hall, N.Y., U.S.A.

Adolescent Psychology.

1. Adolescence :

The meaning of the term adolescence. The importance of adolescence. Methods of studying adolescence. Observational, Experimental, Diary, Case-history, Rating, Questionnaire and Projective methods.

2. Physical and Motor Development during Adolescence:

Increase in height and weight. Physiological changes. Endocrine factors. Blood pressure, heart, pulse-rate and the digestive system. Special problems related to physiological growth.

3. Emotional Growth:

The nature and development of emotional behaviour. Emotions and their relation to over behaviour. Biological and sociological responses. Description of the major emotions—Love, Anger and Fear.

4. Intellectual Development:

Age of cessation of intellectual growth. Constancy of I.Q. Distribution of ability. Sex difference in intelligence.

5. Adolescent Interests:

Nature and growth of interests in adolescence. Special characteristics of interests in social, personal and recreational activities.

6. Social Development:

The nature of social development in adolescence. Selecting companions. The desire for conformity. Leadership.

7. Adjustments of Adolescence:

Adjustments at home, school and community.

8. Mental Hygiene and Guidance:

Truancy and delinquency. Healthful living. Developing a sense of worth. Understanding and accepting one's self. Achieving a consistent attitude towards life.

References: Karl C. Garrison: Psychology of Adolescence, Prentice Hall, N. Y., U.S.A.

J. W. Horrocks: The Psychology of Adolescence, Houghton Mifflin & Co., Boston, U.S.A.

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4. SOCIAL AND ABNORMAL PSYCHOLOGY.

Social Psychology:

1. The province of Social Psychology. Relation to Socialogy. The role of behaviour and consciousness.
2. Social behaviour in animals.
3. The influence of language and gesture on social consciousness.
4. Elementary forms of social stimulation. Sympathy, imitation, suggestion and laughter.
5. Nature and characteristics of coacting, face to face and organic groups. The crowd. Is there a group mind?
6. Leaders—Types and characteristics. Followers.
7. Public Opinion. Radio, News. Rumour. Assessing public opinion.
8. Culture and the development of personality.
9. Cultural analysis and national character.

References: Allport: Social Psychology.

W. G. W. Sprott: Social Psychology, Methuen, London.

Abnormal Psychology:

General: The history of mental disorders. Psychological conception of disorders.

The Phenomenon of Unconscious: Main theories of Freud, Jung and Alder. Defence mechanisms. Conflict. Complex.

Infancy and Childhood: Problems affecting infancy and early childhood. Avoidance of behaviour problems and childhood. The phenomenon of withdrawal. Depression. Schizophrenia. Organic brain disease and mongolism in childhood.

Adolescence: Problems of mental health. Conflicts and adjustments in adolescence.

Adulthood: Phenomenon of Anxiety. Insecurity and psychoneurosis. Physical complaints arising from neurosis. Obesity as a

disturbance in homeostasis initiated by psychological factors. The drink addict. The psychological factors involved in epilepsy. Hysteria and mass hysteria. Schizopherenic disorders. Psychological characteristics of Schizophneria. Paranoid and paranoid disorders.

Mental Hygiene: Hospitalisation. Building up mental health and understanding. Prevention of abnormal behaviour.

Reference: Gardner Murphy and Arthur J. Bacharach: An Outline of Abnormal Psychology.

Bernard Hart: The Psychology of Insanity.

BRANCH VIII—INDIAN MUSIC MAIN

(45) & (46)

2 *Papers*.—THEORY AND HISTORY OF MUSIC I & II.

Two Practical tests: One on Compositions and the other on Manodharma Sangita.

Paper I (45)

Theory of Indian Music.

In addition to the portion prescribed for the Pre-University Course the following:

Sangita: Nada, Ahata and Anahata.

Nadotpatti: Marga sangita and Desi sangita.

South Indian Musicography.

Technical terms and their meanings. Swara nomenclature.

Raga classification in detail.

The scheme of 72 melakartas. The names of the 12 charkas

The Katapayadi formula and its application.

22 Srutis and the ragas wherein they figure. Scales of just intonation and equal temperament. Raga lakshana in detail. Lakshana of the following 51 ragas:

1. Todi.	7. Saveri.
2. Dhanyasi.	8. Chakravaka.
3. Asaveri.	9. Vasanta.
4. Punnagavarali.	10. Saurashtra.
5. Mayamalavagaula.	11. Bhairavi.
6. Bauli.	12. Anandabhairavi.

13. Kharaharapriya.
14. Sriraga.
15. Madhyamavati.
16. Sriranjani.
17. Darbar.
18. Mukhari.
19. Kanada.
20. Ritigaula.
21. Huseni.
22. Harikambhoji.
23. Mohana.
24. Kedaragaula.
25. Natakuranji.
26. Surati.
27. Sama.
28. Sahana.
29. Khamas.
30. Kambhoji.
31. Yadukulakambhoji.
32. Sankarabharana.
33. Hamsadhvani.
34. Suddha Saveri.
35. Kedaram.
36. Arabhi.
37. Begada.
38. Bilahari.
39. Nilambari.
40. Devagandhari.
41. Athana.
42. Nata.
43. Varali.
44. Subhapantuvarali.
45. Pantuvarali (51st Mela).
46. Purvakalyaani.
47. Shanmukhapriya.
48. Simhendramadhyama.
49. Kalyani.
50. Saranga.
51. Hamirkalyani.

The tala system of South Indian Music. 35 talas and 175 talas. Desadi tala and Madhyadi tala. Tala dasa pranas. Shadanga and Shodasanga.

Lakshana of the musical forms figuring in art music, sacred music, dance music, dance drama, opera and Kalakshepam. Manodharma sangita and its forms. Paddhati in Raga alapana kalpana swara and niraval. Pallavi exposition and the principles underlying it. Decorative angas figuring kritis, in Diadasa mudras figuring in musical compositions.

Gamakas and their varieties.

Musical Prosody.

Musical appreciation. Styles of the great composers. Ability to write appreciation essays on classical compositions.

Detailed knowledge of the construction, technique of play and use of the following concert instruments:—Tambura, Veena, Gotuvadyam, Violin, Flute, Nagaswaram, Mridangam, Thavil.

Drones used in Indian music—their Varieties and evolution.

Materials used in the manufacture of Indian Musical Instruments.

Gayaka Gunas and Gayaka Doshas.

Physiological Acoustics.

Acoustics of concert halls.

Radio and Gramophone.

Acoustics: Production and transmission of sound. Musical sounds and intervals. Consonance and dissonance. Vadi, Samvadi, Anuvadi and Vivadi.

Pitch, intensity and timbre. The international Philharmonic pitch. Resonance; sympathetic vibration; echoes, beats, harmonics. Laws of vibration of stretched strings and air columns. Absolute pitch and relative pitch.

Modal Shift of tonic. Its possibilities and imitations.

Moorchanakaraka melas, Moorchanakaraka ragas.

Paper II (46)

History of Indian Music.

Raga classification in ancient music. The Grama-murchana-jati system. Suddha-chayalaga-sankirna system. The Trayodas lakshanas mentioned for ragas in ancient works.

Musical forms and their evolution. Evolution of the concept of mela and the evolution of mela paddhati and mela nomenclature.

Evolution of the Veena. Drones used in Indian Music, their varieties and evolution.

Principal seats of music during the 17th, 18th and 19th centuries in South India.

Influence of exotic music on the development of South Indian Music.

An outline knowledge of the contents of the following lakshana granthas and the historical value of those granthas:

Swaramela Kalanidhi.	Sangita Parijata.
Raga Vibodha.	Sangita Saramrita.
Chaturdandi Prakasika.	Sangraha Chudamani.

History and development of South Indian Musc with special reference to the contributions of the following composers and lakshanakaras; also short biographies of these composers and lakshanakaras:

Jayadeva.
Talappakkam Annamacharya.
Arunagirinathar.
Purandaradasa.
Ramamatya.
Somanatha.
Venkatamakhi.
Narayana Tirtha.
Kshetrayya.
Ahobala.
Bhadrachala Ramadoss.
Sadasiva Brahmendra.
Pachimiriyam Adiyappayya.
Paidala Gurumurti Sastri.
Ramaswami Dikshitar.
Tulajaji.
Thyagaraja.
Muthuswamy Dikshitar.
Syama Sastri.
Govindacharya.
Pallavi Gopalayyer.
Arunachala Kavirayer.
Muthu Thandavar.
Gopalakrishna Bharati.
Subbaraya Sastri.
Veena Kuppayyar.
Swathi Thirunal.
Subbarama Dikshitar
Ghanam Krishnayyer.
Anayya.
Mysore Sadasiva Rao.
Ramaswami Sivan.
Muthia Bhagavathar.
Maha Vaidyanatha Aiyer.
Pallavi Seshayyer.
Karur Dakshinamurthi Sastri.
Muvvalur Sabhapati Iyer
Patnam Subrahmanya Aiyar.
Chengalvaraya Sastri.
Tachur Singaracharlu.
Tiruvottiyur Thyagayyar.
Ramnad Srinivasa Ayyangar.
Dharmapuri Subbarayar.

Sources for the Musical History of India

Contemporary Music

Practical.

One Raganga raga lakshana gita and one janya raga lakshana gita.

Two swarajatis including one of Scyama Sasti. Six tana Varnas of an advanced nature, representative of the Adi, Ata and Jampa talas. One Padavarna. Two of Thyagaraja's Pancharatnam; four padas, two ragamalikas, two tillanas, two javalis and two darus. Fifty-one kritis, one in each of the 51 prescribed ragas. One each of the Ashtapadi, Tarangam and Devarnama.

NOTE: The compositions studied shall as far as possible be representative of the composers mentioned under History.

Alapana of the following 30 ragas:

*Todi.	Natakuranji.
Dhanyasi.	Sahana.
*Mayamalavagaula.	*Khamas
*Saveri.	*Kambhoji.
Vasanta.	Yadukulakambhoji.
*Bhairavi	*Sankarabharana.
*Anandabhairavi	*Hamsadhvani.
*Kharaharapriya	*Begada.
Sriraga.	*Bilahari.
*Madhyamavati.	Nilambari.
*Sriranjani	Athana.
*Mukhari.	*Pantuvarali (51st mela).
Surati	Purvakalyani.
*Mohana.	*Shanmukhapriya.
*Kedaragaula.	*Kalyani.

Ability to develop Kalpana swaras to given themes in Adi, Rupaka, Triputa, Jampa and Chapu talas in the 20 starred ragas mentioned for alapana.

Ability to sing or perform 6 simple Pallavis.

In the pactical examination, candidates may offer vocal music or one of the following instruments: Vina, Violin Gotuvadyam, Flute.

SCHEME OF EXAMINATION.

Paper I—Theory of Indian Music.

Paper II—History of Indian Music.

Practical.

Test I—Compositions.

Test II—Manodharma Sangita.

Books for Reference:

1. Gayakdlochanam by Tachur Singaracharlu.
2. Ganendu Sekharam by Tachur Singaracharlu.
3. Pallavi Swarakalpavalli by Tiruvottiyur Thyagayyar.
4. Sangita Sampradaya Pradarsini by Subbarama Dikshitar (2 vols.)
5. Sangita Swara Prastara Sagaram by Nadamuni Pandithar.

6. Karunamirtha Sagaram by Abraham Pandithar.
7. Principles of Layam by K. Ramachandran (The Indian Music Publishng House, Madras).
8. Music of Hindustan by A. H. Fox Strangways.
9. Music and Musical Instruments of Southern India and Deccan by Capt. Day.
10. Madras Museum Bulletin on South Indian Mucical Instruments by P. Sambamurti, Government Museum, Egmore, Madras.
11. Musical Instruments in the Indian Museum, Calcutta by Dr. Meerwarth.
12. Richardson: Sound.
13. Acoustics of the Auditoria by Davis and Kaye.
14. Svaramelakalanidhi—edited by M. S. Ramaswamy Ayyar (Annamalai University Publication).
15. Varna Malika by K. Ramachandran (Messrs. V. Ramaswami Sastrulu & Sons., Esplanade, Madras).
16. Chaturdandiprakasika—published by the Music Academy, Madras.
17. Gana Bhaskara by K. V. Srinivasa Ayyangar.
18. Syama Sastri and other composers by P. Sambamurti.
19. Guruguha Gnanamrta Varshini by Vedanta Bhagavatar.
20. Kirtanasagaram, Books II, III and IV by P. Sambamurti.
21. Songs by T. Lakshmana Pillai.
22. Acoustics in Tamil by R. K. Viswanathan.
23. Dikshitar's Compositions by Nataraja Sundaram Pillai.
24. South Indian Music, Books 1 to 5 by P. Sambamurti.
25. Nowka Charitra of Thyagaraya, edited by P. Sambamurti.
26. The 72 Melaragamalika of Maha Vaidyanatha Ayyar. Edited by Sabhesa Ayyar.
27. Tanjai Peruvudayan Perisai by K. Ponniah Pillai.
28. Sangita Sudha, Tamil translation of Chathurdandiprakasika and Sangita Saramrita—published by the Music Academy, Madras.
29. Grammar of South Indian Music by C. S. Ayyar.
30. Sangita Lakshana Sangraha by A. S. Murti.
31. Tala Dipika by K. Ramachandran.
32. Purandaramanimala by Lalitangi.
33. "Flute" by P. Sambamurti (Second Edition).

34. Introduction to the Study of Musical Scales by AlainDanielou.
35. Sangita Martanda.
36. The Kritis of Syama Sastri and others—3 volumes by Vidya.
37. Kritimanimalai—4 volumes by R. Ramanujam.
38. Thyagaraja Kirtanalu with Commentary by Veerabhadra Sastri.
39. The Teaching of Music by P. Sambamurti.
40. Great Composers—Books I and II by P Sambamurti.
41. Dictionary of South Indian Music and Musicians by P. Sambamurti.
42. Musical Compositions of Chengalvaraya Sastri by P. Sambamurti.
43. North Indian Music by Alain Danielou.
44. Life of Thyagaraja by Sri P. Sambamurti.
45. Mahabharata Choodamani, Chap. IV—Madras Government Oriental Series.
46. Thyagaraja's Kritis set to notation by Sri C. S. Iyer.
47. Pallakisevaprabandham of Sahaji by P. Sambamurti.
48. Dakshinaraga Ratnakaram by K. Ramachandran.
49. Dikshitar's Compositions by A. Sundaram Iyer.
50. 108 kritis of Tyagaraja by C. S. Iyer.
51. Musical Compositions of Kalidasa by Kamala Krishnamurthi.
52. Sangita Sabdartha Chandrika, by A. Satyanarayanamurthi.
53. Abhayambal Navavarna kritis by A. Anantakrishna Iyer.

BRANCH IX—WESTERN MUSIC MAIN

FOUR PAPERS—2 WRITTEN AND 2 PRACTICAL.

(47)

First Paper—Theory—Form and Instrumentation—History of Music.

(1) *Transposition and Time*: Transposition from Clef to Clef, from Key to Key and from Short to Open Score, *vice versa*.

The addition of Key and Time signature, Bar-lines, Rests to a melody, completing given bars by the addition of proper notes and rests.

(2) *Intervals and terms*: Intervals of all kinds—Diatonic and Chromatic, Simple and Compound Direct, and inverted, naming the Keys Major and Minor in which these may be found.

(3) *Ornaments and Phrasing*: To write out in full as essential notes of the bar given ornaments or abbreviations and to add suitable phrasing, bowing, marks of expression and indications of tempo.

(4) *Form*: Knowledge of the Vocal and instrumental forms.

(5) *Orchestration*: A general knowledge of all instruments of the orchestra is required.

(6) *History of Music*: A general knowledge of the history of music from earliest times to modern times.

(48)

Second Paper—Harmony.

1. *Harmonic Analysis and Figuring of Basses*:

(*a*) Analysis of Pianoforte Muisc by giving Chord Indications and by indicating the presence of unessential notes, notes of anticipation, passing notes and Pedal points.

(*b*) Figuring the Bass of a simple example of Vocal Harmony up to and including Chords of the Seventh and their inversions.

2. *Harmony*:

(*a*) Simple exercises on Triads and their inversions; the Dominant Seventh, its Inversions and Resolutions.

(*b*) The construction and naming of Cadences.

3. *Figured Bass*: Adding (in Open Score), Alto and Tenor parts with C clefs to a given Melody and Figured Bass, emplifying Triads, Chords of the seventh and their inversions, suspension, passing notes, etc.

Adding two or three parts above a figured Bas sin Open Score with C clefs for the inner parts. The bass may include unessential notes and Chromatically altered Harmony notes.

4. *Melody*: Harmonizing a short Treble melody in three or four parts in Short Score.

5. *Unfigured Bass*: Harmonization of a simple unfigured bass in Short Score.

6. *Two part Counterpoint:*

(a) Adding Counterpoint in the first species, above or below a given Canto Fermo.

(b) Adding a Counterpoint above or below a given Canto Fermo in any other Species as may be required.

Third and Fourth Paper—Practical.

Third Paper: Practical I.

Pieces: One piece chosen by the candidate from each of the following lists:

LIST I.

Bach:

Any Prelude and Fugue from the 48 Preludes and Fugues.

LIST II.

Beethovan:

Sonata in G.Op. 14, No. 2.

Sonata in B. Flat, Op. 22.

Sonata in G. Op. 79.

Sonata in F. Op 54.

Haydn:

Sonata in D. No. 7.	Williams.
Sonata in D. No. 9.	Williams.
Sonata in E. Flat No. 1.	Williams.

Mozart:

Sonata in F. (K. 280).	Williams.
Sonata in G (K. 283).	Williams.
Sonata in F (K. 332).	Williams.
Sonata in B. Flat (K. 570).	Williams.

LIST III.

Bantock: Glory of the Son.	Paxton.
Bax: Country Tune.	Chappell.
Berkeley: Number 5 from "Six Preludes".	Chester.
Bridge: "Fragrance" from 'Characteristic Pieces".	W. Rogerss.

Bowen: Prelude from 'Suite Mignonne" Op. 39 Williams.
Brahms: Intermezzo, Op. 76, No. 6.
Chopin: Polaniaise in Cminor, Op. 40, No. 2.
Debussy: Seranade for the Doll. U.M. Publishers.
Dohnanyl: March on a Ground Bass, Op. 17, No. 1. Lengnick.
Edmunds: September Williams.
Farjeon: A pipe Tune from "Moorish Idylls." Ashdown
Greig: Puck, Op. 71, No. 3, Peters-Hinrichesen, Ed. 2985.
Harrison: Burlesque from "Five by Ten" (Book 5). Lengnick.
Ireland: Soliloquy. Augener.
Macdowell: Scherzinc, Op. 39, No. 11. Elkin.
Moeran: Bank Holiday. Oxford Univ. Press.
Parry: A Caprice from "Five Romantic pieces." Ashdown.
Poulence: Novelette in C. Chester
Ravel: Minuet on the name Haydn. United Music Publishers.
Rowley: Idyll. Ashdown.
Schumann: Novellette in E, Op. 21, No. 7.
Scott: Number 2 from "Etudes," Op. 64. Elkin.

Fourth Paper: Practical II.

(1) ***Sight Reading***:

(2) *Ear Tests*:

(*a*) To name major, minor and diminished triads played in close root position or first inversion, also to name the augmented triad.

(*b*) To name the modulation of an harmonic passage as being from a major key to its relative minor, its median minor, its supertonic minor; or from a minor key to its relative major, flattened leading note major or submediant major, after the passage has been played by the examiner.

(*c*) To name cadences—Perfect, plagal, imperfect or interrupted, as they occur in a simple diatonic passage, in a minor or major key, played by the examiner.

(*d*) To sing or play from memory the upper or lower part of a two-part passage in a major or minor key which will be in some form of simple time, played twice by the examiner. The key will be stated and the tonic chord sounded first.

(*e*) Arythmic phrase not exceeding four bars in simple time will be played twice by the examiner. The candidate will be required:

(*a*) To clap or tap the note-values from memory.

(*b*) To beat time while the same phrase is played again and to continue after the music has ceased.

(*c*) To state the time signature of the phrase.

(3) *Scales and Arpeggios*: To be played from memory.

Scales (1) The Major, Harmonic and Melodic Minor and Chromatic Scales, in thirds and sixths, one note to each hand, in similar motion, beginning from above or below to the extent of four octaves. For the Chromatic Scales minor thirds and major sixths are required.

(2) The Major Scales in double octaves, to the extent of three octaves in similar motion.

(4) *Arpeggios*:

Arpeggios founded on Dominant and Diminished Sevenths and their inversions, one note to each hand, beginning from above or below, to the extent of four octaves.

All scales and arpeggios are to be prepared *legato* and *staccato*, and *forte*, *piano*, *cres* and *dim*.

(5) *Viva Voce*:

Questions will be asked on technique, repertioire and form. Also on harmonic progressions occurring in the selected pieces up to and including chords of the Dominant and Diminished sevenths and their inversions, suspensions and passing and other unessential notes.

Reference Books:

Trinity College Text-books Musical Knowledge for Local Examination in theory Adv. Intermediate Division—Senior Division and Higher Local.

Melody and Harmony by Stewart Macpherson.

Harmony 1st, 2nd and 3rd Year by William Lovelock.

Form in Brief by William Lovelock.

Form by Steward Macpherson.

The Instruments of the Orchestra by Borland.

Brass Wood Wind and Strings by Desmond McMahon.

The Listener's History of Music by Percy A. Scoles.

The Growth of Music—

Part I—Up to J. S. Bach.

Part II—The Age of the Sonata.

Part III—The Ideals of the 18th Century.

Each part published separately by Oxford University Press.

Studies of Great Composers by Hubert Parry.

BRANCH X—DARWING & PAINTING MAIN

4 hours per week for 2 years.

20 hours per week for 1 year.

SYLLABUS.

Practical.

(49)

1. *Nature Drawing.*

Plants: Flowers, fruits and branches, a single tree, a group of trees, from nature.

Medium: Pencil, coloured pencil, water colour.

Still-life: In pastel, water-colour, oils.

Animals: Study of construction and proportions. Some domestic animals: cows, goats, dogs, etc. Some birds, fowls, Quick sketches in pencil.

Composition: Village scenes with animals.

Medium: Water-colour, tempera, oils.

Landscapes: Medium: Pencil, coloured pencil, water-colour, pastels, Indian ink, oils.

Human figure:

(*a*) In repose from real life and in action from real life. Quick sketches in pencil only.

(*b*) Study of parts, construction and proportions of the human body. Medium: Pencil, charcoal or coloured pencils.

Portrait: In oils or any other medium.

Figure Composition: Scenes depicting action. Medium: Tempera, water-colour, pastels, oils.

(50)

2. (a) *Perspective and Object Drawing.*

Laws of perspective by observation of a straight-line objects.

Laws of perspective by observation of curved-line object.

Space-perspective by obrsevation in out-door sketches.

Law of perspective of oblique lines in

(*a*) Object drawing.

(*b*) Space perspective.

Practical application of perspective in

1. Object drawing:

Single objects, group of objects in straight-line, curved-line and oblique line.

2. Landscape:

(*a*) Illustration by clear diagrams of out-door space-perspective.

(*b*) Free-hand drawing of landscapes from nature, or composed by the students.

Medium: Pencil, coloured pencils, pastels, Indian ink or water-colour.

(51)

2. (b) *Decorative Art.*

(*a*) Flat design Compositions for Handicrafts: borders, all-over patterns, etc., for silk, satin, wood, leather, pottery, etc.

(*b*) Occasional execution of Compositions of borders, all-over patterns, etc., on silk, satin, wood, leather, pottery, etc.

(52)

3. *Lettering.*

(*a*) Decorative handwriting.

(*b*) Letter-composition, for signs, etc.

(For Note-books, Albums, Charts, Models, Crafts; Museum, Excursions, same as for History of Fine Arts Main).

(53)

4. *Principles and Appreciation of Arts and Craft Processes.*

Same syllabus as for History of Fine Arts Main.

BIBLIOGRAPHY.

For Drawing and Painting Degree Course.

E. A. Branch: The Principles of Model and Common Object Drawing (Paper-Setters should limit themselves in their questions to the amount of perspective given in this book).

W. Abbott: The Theory and Practice of Perspective.

H. W. Harrison and W. L. Wyllie: The Theory of Pictorial Art.

F. J. Glass: Drawing Design and Craft work.

B. Sleegh: A Handbook of Elementary Design.

Herbert A. Rankin: The Teaching of Colour (Art Manuals).

E. G. Latz: Practical water-colour sketching.

L. Richmond and J. Littlejohn: The Technique of water-colour Painting.

Hilair Hiler: Notes on the Technique of Painting.

Adirian Stockes: Landscape Painting.

Rex Vicat Cole: The Artistic Anatomy of Trees.

Harold Speed: Practice and Science of Drawing.

Th. Kautzky: Pencil Pictures.

Th. Kautzky: Ways with Water-colour.

Th. Kautzky: Painting Tree and Landscapes in Water-colour.

H. Gasser: Oil Painting, methods and demonstrations.

S. J. Solomon: The Practice of Oil Painting and Drawing.

Russell Laker: Anatomy of Lettering.

A. Cecil Wade: Modern Lettering.

James M. Dunlop: Anatomical Diagrams.

Pedro de Lemos, F.R.S.A.: The Art Teacher.

BRANCH XI—HISTORY OF FINE ARTS MAIN

4 Papers.

4 hours per week for 2 years.

20 hours per week for 1 year.

SYLLABUS.

(54)

I. History of Indian Art:

Proto-Historic Period.

Indus Valley Civilisation.

Historic Periods.

ARCHITECTURE.

Mauryan Architecture (c. Fourth cent. B.C.—c. 185 B.C.)

Sunga and Early Andhra Architecture: Barhut, Bodh Gaya, Sanchi (c. 185 B.C.—c. 150 A.D.)

Rock-cut Architecture of the Hinayana Period.

W. India: Bhaja, Kondane, Nasik Pandulena Cave, Bedsa, Karle, Kanheri; Ajanta Caves 8, 9, 10, 12, 13 (22nd Cent. B.C.—2nd Cent. A.D.)

Rock-cut Architecture in Orissa (c. 2nd Cent. B.C.)

Gandhara—Mahayana Buddhist Viharas (c. 250 B.C.—c. 450 A.D.)

Buddhist Architecture in South India: Later Andhra: Amaravati, Nagarjunakonda (c. 25 B.C.—320 A.D.)

Gupta Architecture (c. 320—c. 650 A.D.)

Early Chalukyan Architecture: Aihole, Badami, Pattadakkal (c. 450—c. 650 A.D.)

Rock-cut Architecture of the Mahayana Period:

W. India: Ajanta, Ellora Buddhist Caves, Aurangabad, Bagh (450—642 A.D.)

Rock-cut Architecture Final phase. Ellora: Brahmanical and Jain Caves (600—900 A.D.)

Dravidian Architecture:

Origin under the Pallavas (600—900 A.D.)

Chola (900—1150 A.D.)

Pandya (1100—1350 A.D.)

Vijayanagar (c. 1350—1565 A.D.)

Madura (from c. 1600 A.D.)

Northern or Indo-Aryan Architecture:

Orissa (800—1250 A.D.)

Khajaraho Group C. India (950—1050 A.D.)

Gujarat and the West (941—1311 A.D.)

Later Chalukyan Style (*a*) Hoysala, (*b*) N. Mysore up the Thungabadra river (c. 1050—1300 A.D.)

Kashmir: The Buddhist and Brahmanical remains (200—1300 A.D.)

The Building Art of Nepal.

Islamic Architecture:

(*a*) Delhi or Imperial Style under the Slave Dynasty (c. 1200—1246 A.D.)

Under the Khilji Dynasty (1290—1320 A.D.,

Under the Tughlak Dynasty (1320—1413 A.D.)

Under the Sayyid Dynasty (1414—1451 A.D.)

Under the Lodi Dynasty (1451—1526 A.D.)

(*b*) Provincial Styles (Summary only).

Buildings of Sher Shah Shur (c. 1530—1545 A.D.)

Mughal Architecture:

Babur (1526—1531 A.D.)

Humayun (1531—1556 A.D.)

Akbar (1556—1605 A.D.)

Jahangir (1605—1627 A.D.)

Shah Jahan (1627—1658 A.D.)

Aurangazeb (1658—1707 A.D.)

and after.

The Mediaeval Palaces and Civic Buildings.

SCULPTURE.

Mauryan.

Sunga and Early Andhra: Barhut, Bodh Gaya; W. Ghats: Kondane, Bhaja, Bedsa, Karle, Sanchi.

Later Andhra: Amaravati, Nagarjunakonda.

Kushan: Gandhara (Greco-Roman form and Indian Iconography), Mathura (Indian Phase).

Gupta: In the Gupta Empire; in the Deccan: Ajanta, Aurangabad, Bagh and Kanheri.

Post-Gupta: Ellora, Elephanta, Pala, Sena and Orissa (with absolute restriction of erotic motifs, so here, as elsewhere).

South Indian: Pallava, Chola, Vijayanagar and Modern.

Hoysala.

Indian Bronze Sculpture.

PAINTING.

Ajanta: especially Caves 9, 10, 16, 17, 1, 2.

Paintings at Bagh, Sittannavasal, Badami, Ellora, Tanjor Lepakshi, Travancore-Cochin, Conjeevaram.

Mughal: Period of Humayun.
Period of Akbar.
Period of Jahanghir.
Period of Shah Jahan.
Dekkani Paintings.

Rajput Painting: Rajastani School.
Pahari School—(a) Early Period: Basholi.
(b) Later Period: Kangra, Gahrwala, Sukhat, Mandi.

Modern Indian Painting:

Indian Art in South-East Asia:

Ceylon, Cambodia, Siam, Burma, Java

Indian Art in China:

Buddhist Art in China.

(55)

II. History of World Art.

Ancient Art:

Egyptian Art:

Early Egypt and Old Kingdom (about 4500—2475 B.C.)

The Middle Kingdom and the Empire (2160—1090 B.C.)

Art in the Tigris-Euphrates Valley and Persia:

Sumerian Art (about 4000—1925 B.C.), Assyrian Art (about 1000—612 B.C.), Chaldean or Neo-Babylonian Art (612—539 B.C.), Achemenian Persian Art (539—331 B.C.).

Aegean Art (about 3000-1100 B.C.).

Greek Art:

Geometric, Archaic and Fifth Century Art (about 1100—400 B.C.) Fourth Century and Hellenistic Art (400 B.C. to the 1st cent. B.C.).

Etruscan and Roman Art (about 110 B.C.—A.D. 500).

Chinese Art (about 3000—B.C.—A.D. 907).
Japanese Art (A.D. 552—900).

Mediaeval Art.

Early Christian and Byzantine Art:
Russian Art (tenth to eighteenth century A.D.).
Muhammadan Art (A.D. 622 to date).
Persian Art: Sassanian Persian Art (A.D. 226—641).
Muhammadan Persian Art (A.D. 641—1736).
Romanesque Art (About A.D. 500—1150).
Gothic Art (About A.D. 1150—1550).
Chinese Art (A.D. 960 to date).
Japanese Art (A.D. 900 to date).

Renaissance Art.

A. Renaissance Art in Itay:

Architecture and Sclupture (about 1300—1600).
Painting: Sienese and Florentine Painting,
Northern Italian Painting.
Baroque Art: (Seventeenth Century).

B. Renaissance Art in Northern, Western and Eastern Europe:

Flemish Art (Fourteenth to Seventeenth Century).
German Art (Fourteenth to Sixteenth Century).
Spanish Art (Fifteenth to Nineteenth Century).
Dutch Art (Sixteenth to Seventeenth Century).
English Art (Sixteenth to Nineteenth Century).
French Art (Fifteenth to Nineteenth Century).
Russian Art (Sixteenth to Nineteenth Century).

Tendencies in Modern Art.

Nineteenth Century:
Architecture.
Painting: English and French.
Twentieth Century:
Architecture.
European Painting.

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Principles and Appreciation of Art & Craft Processes.

Fundamental Principles of Art :

Elements of Form: Line.
Colour (Hue—Value—Intensity).
Texture.
Area.
Volume.

Organisation of Form : Structural and Decorative.

Requirements : " Form follows function."
" Variety in Unity ".

Principles of Design : Harmony—Proportion—Rhythm—Emphasis.

Architectural Form :

Determinants : Purpose—Material—Site.
Creation:
Plan:

Mechanical activity :
Four kinds of construction:
Lintel, Arch, Concrete, Steel.

Elementary Forms of Construction :
Foundation.
Walls.
Columnar construction.
Arch construction.
Roofs.
Floors.
Openings.

Aesthetical activity :
Proportion and relationship.
Line Direction, light and dark.
Colour and texutre of materials.

Architectural Design & Decoration :
Elevation, Section : Facades.

Horizontal Section : Plans.
Elementary Forms (design).
Decoration:
exterior.
interior.

Sculptural Form:

Three classes : Sculpture in the round.
Relief.
Intaglio.

Materials: Hard and Plastic.
Process: Carving and Modelling.
Function: Dependent or Independent on architecture.
Site: Outside or indoors.

Pictorial Form :

Painting: Fresco.
Tempera.
Oil.
Water Colour.

Drawing: Pencil.
Crayon.
Pen and ink.
Charcoal.

Graphic Hand Processes:
Wood-cut and Linoleum Cut.
Engraving.
Etching.
Dry Point.
Lihography.
Silk Screen Process.

Forms in Minor Arts: (With special emphasis on Indian crafts).

Ceramics and Glassware:
Porcelain Stoneware.
Pottery Chinaware.
Enamels.
Mosaics.

Baked clay Terra Cotta.
Glassware.
Stained Glass.

Metal Work:

Work in precious metal.
Iron work.
Other metals.

Glyptics and Carving:

Gems.
Seals.
Wood carving.
Ivory, horn, bone etc.

Textile: The Processes:—

Weaving.
Knitting.
Felting.
Lace making.
Design.
Structural.
Woven Patterns.
Printed.
Batik.
Applique.
Embroidery.

Art of the Book: Development—

Manuscript : Formal writing.
Cursive writing.
Miniature painting.

Printing: Pictorial woodblocks.
Woodblocks with a few words on them.
Individual letters.
Platen press.
Cylinder press.
Rotary type.

Setting : Handsetting.

Linotype.

Monotype.

Different types.

Mechanical Graphic Process:

Line cut.

3-colour process.

Half-tone process.

4-colour pocess.

Photogravure and Rotogravure.

Collotype.

Short Historical Survey of Art Theories:

In India (Silpa Sastras etc.)

In Europe.

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LETTERING.

Same Syllabus as for Drawing and Painting Main.

Note-Books, Albums, Charts, Models, etc. :

Architectural albums, containing copies of buildings (Plans, elevations and sections), photo collections, charts, enlargements of monuments, note-books on excursions and visits to museums,craft samples, architectural models have to be prepared by the students, during the course.

Students who privately acquaint themselves with a craft like : photographic, book-binding, leathercraft, lino-cut, weaving, embroidery, fretwork,etc.,etc. can submit their work together with their albums for the examination. The examiner will give them marks according to the merit of the work. The College could provide students with facilities for such work.

A Fine Arts Museum should be provided in the College, containing Art reproductions (Monochrome and polychrome) maps, charts, architectural models, copies of sculptures, samples of different crafts (especially Indian), drawings and piantings of the students and objects of decorative art.

Excursions and trips to archaeological places as well as visits to museums exhibitions and crafts-factories are part of the Syllabus.

BIBLIOGRAPHY FOR HISTORY OF FINE ARTS DEGREE COURSE.

Indian Art :

Benjamin Rowland :	The Art and Architecture of India.
Rawlinson, Wilkinson, Irwin, Cordington	Indian Art.
Percy Brown :	Indian Architecture, 2 Vols.
J. Ph. Vogel :	Buddhist Art in India, Ceylon and Java.
A. H. Longhurst :	Story of the Stupa.
	Pallava Architecture, 3 Vols.
	Nagarjunakonda.
Cordington, Irwin & B. Gray	The Art of India and Pakistan.
Ludwig Bachhofer :	Early Indian Sculpture, 2 Vols.
Chintamoni Kar :	Classical Indian Sculpture. Indian Metal Sculpture.
G. Yazdani :	Ajanta, 4 Vols. (Text & Plate).
	Fine Arts: Architecture Sculpture and Painting History of the Deccan, Vol. I, Part VIII.
Stella Kramrish:	The Act of India through the Ages.
	Indian Sculpture.
	A Survey of Painting in the Deccan.
Basil Gray:	Rajput Painting.
J.V.S. Wilkinson:	Mughal Painting.
Percy Brown:	Indian Painting. Indian Painting under the Mughals.
Majumdar:	The History and Culture of the Indian. People: Chapters on Art.

Art Publications of the Government of India.

A Handbook for Travellers in India and Pakistan, Burma and Ceylon.

World Art:

Helen Gardner : Art through the Ages.

NOTE : *The History of Fine Arts being so vast, paper-setters should limit themselves to the chapters in this book, bearing the same name of the topics as regards the choice of artists and their work.*

Frank Ross :	An Illustrated Handbook of Art History.
Louis Hourticq:	Encyclopaedia of Art, 2 Vols.
Sir Banister Fletcher :	History of Architecture on the Comparative Method.
D. Ware & Beauty :	A Short Dictionary of Architecture.
Jose Pijoan :	History of Art, 3 Vols.
Upjohn, Everard & Wingert :	History of World Art.
J. I. Sowall :	A History of Western Art.
E. H. Gombrich :	The Story of Art.
Adolfo Venturi :	A Short History of Italian Art.
Jackson :	Gothic Architecture in France, England and Italy, 2 Vols.
Emile Male :	Religious Art.
Marcel Aubert :	French Cathedral Windows.
Barnes, Maude, Fiero :	Renaissance Vistas.
Gregory Padrick :	When Painting was in glory.
Giorgio Vasari :	The Lives of the Painters, Sculptors Architects.
Otto Benesch :	Art of the Renaissance in Northern Europe.
Roger Fry :	Flemish Art.
Raymond S. Stites :	The Arts and Man.

Principles and Appreciation of Art and Craft Processes :

Faulkner, Ziegfeld & Hill.	Art to-day : An Introduction to the Fine and Functional Art.
Harriet Goldstein:	Art in Every Day Life.
Helen Gardner :	Understanding the Arts.
A. Philip Mc Mahon :	The Art of Enjoying Art.
Overton :	Appreciation of Art.
L. Kainz & O. Riley:	Exploring Art.
Heinrich Wolfflin :	Principles of Art History.
H. Ruhemann and E. M. Kemp.	The Artist at Work.
Lionello Venturi :	Painting and Painters.
Arthur Stratton :	The Orders of Architecture.
Mitchell :	Building Construction and Drawing.

Glass :	Modelling and Sculpture.
Rich :	Materials and Methods of Sculpture.
H. Hiler :	Notes on the Technique of Painting.
Carol Janeway :	Ceramics and Pottery making for every one.
Shirley:	Handcraft in Metal.
Baxton :	Jewellery, Gem-cutting and Metalcraft.
Brinkley :	Designs for Print—a Handbook of Design and Reproduction Processes.
Sean Fannett :	The making of books.
P. Orman :	Handloom Weaving.
Ch. H. Groneman :	Leather Tooling and Carving.
John Halliday :	Book craft and Book binding.
Journal of Indian Art :	Articles on Indian Crafts.
Kamala S. Dongerkery :	The Romance of Indian Embroidery.
Designs in Indian Textiles :	The Indian Institute of Art in Industry.
Indian Handicrafts :	Government of India.
Kashmir Handicrafts :	Government of India.
Kanu Desai & Bhadra Desai.	Indian Decorative Art.
Some of Mac Millan's:	Craftsmen's Library Pamphlets.
Dryad Handicraft Instruction Leaflets.	
Maitland Graves :	The Art of Color and Design.

BRANCH XII—LANGUAGES

Sanskrit

Ancient Indian History and Culture upto 1000 A.D.

(One Paper)

[For Branch XII—Sanskrit Main—(One Paper)].

Influence of Geography—Racial elements in India's population—Sources of Indian History.

The pre-historic period—Indus civilisation : Its authorship, date and extent.

Origin of the Aryans—Vedic literature—Religion, society and polity in the Rigvedic and later vedic periods.

The sixth century B.C.—Religious unrest: Jainism and Buddhism —Rise of Magadha—Persian and Macedonian invasions and their influence on Indian culture.

The Mauryan Empire—Asoka—the Mauryan polity—literature and inscriptions—Art and architecture.

Foreign invasions—Indo-greeks, Sakas, Kushans—effects on culture and religion—Mahayana Buddhism, Gandhara Arts.

The South : Satavahanas—Kalinga—Sangam literature—early Cholas, Pandyas and Cheras—Religion and polity—Indian colonisation and cultural expansion in South-east Asia.

The Gupta Empire—The gupta period as a golden age ; Literary revival, sculpture and painting.

Hun invasions—Harsha's Empire—Administration, religion and society—Chinese pilgrims and their accounts.

The Deccan : Chalukyas and Rashtrakutas—Contribution to art and architecture—Religion and social life.

South India : The great Pallavas—Administration, architecture, religion—Rise of the imperial cholas.

North India on the eve of Muslim invasions—The Rajput dynasties —Arab conquest of Sindh.

Books recommended : Sathianathier—College Text-book of Indian History—Vol. I

Nilakanta Sastri—History of India—Part I.

Basham—The Wonder that was India.

Latin

Two Classical Dramas, from (i) Plauturs and (ii) Terence or Seneca.

Prose :

A Speech of Cicero and a book of Tacitus.

Poetry:

A book of Virgil, a book of Horaces Odes and a Satire of Juvenal.
History of Latin Literature.
Study of prescribed author's life and works.

GROUP B.

1. History of Rome during the Republic.
2. History of Rome from Augustus to the death of Nero.

French

Three Classical Dramas from Racirne, Corneille, Moliere.

2,000 lines of Poetry from the Oxford Book of Frenhc Verse.

Three books by writers of the 19th and 20th centuries of which two shall be Novels.

History of French Literature from the Renaissance to Modern Times.

Study of a prescribed author's life and works.

Grammar :

No Text-book is prescribed but the following is recommended : French Grammar based on Modern French Course by M. Dondo (Heath).

GROUP B.

1. History of Europe from 395 A.D. to 1,500 A.D. in the first year.
2. History of Europe from 1,500 A.D. in the second year.

Hindi

Syllabus for the History of the Hindi Language and Literature.

A. Language.—

I. *General.*—(i) Its purpose, origin, definition and development.

(ii) The Aryan family of languages. The language of the Early Aryan settlers in India. Stages of development of that language—Prakrits—Apabhramsas—'Old Hindi.'

II. *The different groups.*—The Antrang and Bahirang groups of languages and their geographical distribution. Eastern Hindi and Western Hindi and their important literary dialects.

III. *The Language employed for literature:*

(i) The Language of Ancient Hindi literature with special reference to the works of Chandbardai, Kabir and Amir Khusro.

(ii) Avadhi and its development with special reference to the works of Jayasi and Tulsidas.

(iii) Vraja-Bhasa and its development.

(iv) Khadi-Boli and its development. The origin of the term Hindi and its relation to Urdu and Hindustani.

IV. *Language and Dialect.*—The standard of literary language and the spoken language. Their relation and mutual influence. The dialect spoken by the Mussalmans of South India and its peculiarities regarding vocabulary, grammar and construction. The extent of Persian and other influence on the Hindi Language.

B. Literature.—

I. *General.*—The dawn of Hindi as a distinct language. Its early development. The different literary dialects represented by the term Hindi. A general survey of Hindi Literature. Division into periods. Main characteristics and tendencies of each period.

II. *The Early Period.*—Specimens of Hindi found in the works of the SIDDAS and the JAINS. Pecularities regarding matter and language.

III. *The Caran Pariod.*—Historical background. General characteristics regarding matter, language and poetical forms.

(i) Dingal Literature—Kuhman Raso; Bisaldev Raso; Prithviraj Raso; Prithviraj Vijaya; Alha Khand; Hammir Raso.

(ii) Miscellaneous Literature—The works of Amir Khusro Mulla Daud and Gorakhnath.

IV. *The Bhakti Period.*—The religous awakening, Nirgun School and Sargun School and their sub-divisions. Historical background. The influence of political and social condtions on literature. The main currents. Their characteristics regarding language and the religious philosophy expounded.

(i) *Gyan Kavya.*—The important poets—Jayadev, Namdev, Sadna, Ramanand, Pipa, Raidas, Kabir, Dharmdas, Guru Nanak, Farid, Malukdas, Dadudayal, Sunderdas, Daria Saheb, Carandas, Garibdas, Sahjobai, Tulsi Saheb, Faltoodas.

(ii) *Prem Kavya.*—The important works and their authors: Mrigavati (Kutuban), Madhumalati (Manjhan), Padmavati (joyasi), Citravali (Usman), Indravati (Nur Muhammad), Kanak Manjari (Kasiram).

(iii) *Ram Kavya. Vaishnavism.* The Rama School. Tulsi and his works. Kesavdas—his importance as a poet artist. Nabhadas (Bhaktamal). Hridayram Maharaj Visvanathsinh. Ramcarandas Harbaksh Sinh. Girdhardas.

(iv) *Krishna Kavya.—Vaishnavism.* The Krishna School. Vidyapati, Surdas and other Astachhap poets, Mirabai, Kriparam, Narottamdas, Swami Haridas Hitaharivams, Balabhadir Misr, Senapati, Sunderdas, Rasakhan, Alam.

(v) *Akbar and the Hindi poets of his court.*—Manohar Kavi; Rahim ; Virbal ; Todarmal; Narahari Bandijan ; Gang.

(vi) *Prose writers of the period.*—Goraks ; Vitthalnath and Gang.

V. *Riti Period.*—The development of Literary forms in Hindi Poetry. Poetical works on Rhetoric and Prosody. Erotic Poetry. Kesav Das ; Tripathi brothers—Bhushan—his Virkavya ; Matiram ; Biharilal Dev ; Bhikhari Das ; Padmakar ; Pratapsahi ; Gnananand ; Raja Jaswant Sinh.

VI. *The Transition Period.*—Temporary dearth in the production of literature. Dawn of prose literature. Impetus given to the same by Christian Missionaries and the Arya Samajists. The poets and prose writers of the period.

VII. *The Modern Period.*—Outstanding features of the period. The development of Khadi-Boli prose and poetry. Influence of Bengali and Marathi literature and that of the Western culture and literature Renaissance in Hindi literature. Makers and masters of Modern Hindi Prose.

(i) Important Vraj-Bhasa poets of the age.

(ii) Important Khadi-boli poets of the age.

(iii) Development of prose—Important writers.

(iv) Development of the Drama—Jayashankar and other important dramatists.

(v) Development of the Novel—Premchand and other novelists.

(vi) Development of Galp-sahitya—Important writers.

(vii) Literary criticism in Hindi—The important critics.

(viii) Important writers on subjects like History, Biography, Science, Politics, Philosophy, etc.

(ix) The part played by Journals in the development of Hindi literature.

(x) The service rendered by institutions like the Nagari Pracharini Sabha for the development and preservation of Hindi literature.

(xi) Modern tendencies of Hindi Literature.

Syllabus for Grammar (Historical and Comparative).

Rhetoric and Prosody :

I. *Introductory.*—(i) The origin of language. Classification. Dialectical separation and growth of literary standard languages, Dialects and cognate languages.

(ii) The Aryan family of languages. The language of the Early Aryans who settled in India. The development of the Prakrits. Eastern and Western Hindi.

II. *The Literary Dialects.*—The literary dialects of Eastern and Western Hindi. Comparison between Vraj-Bhasa, Avadhi and Khadi-Boli.

III. *The Hindi Alphabet.*—(i) The script. History of the letters. Special symbols used for foreign sounds. (ii) The Sound values. How far the alphabet is phonetic, Pronunciation. Written symbols and sounds.

IV. *Phonology.*—(i) The vowel system. Comparison with the Sanskrit vowels. Diphthongs—Comparison with Vraj-Bhasa and Avadhi vowels. (ii) Consonants and their classification. Conjunct consonants. Sandhi—Nasalisation. Anusvara and Ardhanusvara. Final aspiration. Accent. Interchange of consonants in Old Poetry.

V. Word-building. Classification of words. Parts of Speech. Substitute for the Article.

VI. *Nouns.* Classification. Gender : According to meaning and according to ending. Exceptions. Gender indicated by different words. Gender of Compound Nouns and Urdu Nouns.

Number : Formation of plurals. Special uses of Singular and Plural.

Case : The different cases and declension of nouns. The case-ending. Their history. Comparison with Vraj-Bhasa and Avadhi case-endings. Other parts of speech used as nouns.

VII. *Pronouns.*—Classification. History of the pronouns. Comparison with those of Vraj-Bhasa and Avadhi. Compound pronouns.

VIII. *Adjectives.*—Classification. Comparison of adjectives. Uses of Sa, Sarikha, Namak, Rupi, etc. The a, a, and o endings of Avadhi, Khadi-boli and Vraj-Bhasa adjectives.

IX. *Verbs.*—Roots, single and combined. Intransitive, Transitive and Causative. Their formation. Roots formed out of nouns. Tenses. Their formation. Roots formed out of nouns, History and use of Ne. The present, past and future tenses of the Vraj-Bhasa and Avadhi verbs. Moods: How formed. Voices : Active, passive and impersonal. Kridants and their uses. Compound (close, loose, synonymous, Alliterative) verbs, Noun compounds. Onomatopoetic verbs.

X. *Adverbs.*—Classification. Adverbial phrases.

XI. Post-positions ; Conjunction ; Interjections.

XII. Prefixes and suffixes (Hindi, Urdu and Sanskrit).

XIII. *Vocabulary.*—Tatsama, Tatbhava, Desi, Vikri and foreign words.

XIV. *Semantics.* Changes in the meanings and usage of words. Elevation, degradation and specialisation of native and foreign words.

XV. Order of words in a sentence. Components of sentences. Punctuation. Phrases and proverbs.

Note. The study of Rhetoric and Prosody shall be limited to the matter contained in the book "KAVYAPRADIP" by Pandit Rambihari Sukl, Published by Hindi Bhavan, Lahore.

Tamil.

(*Vide* Regulations)

Telugu.

SYLLABUS FOR THE HISTORY OF ANDHRA DESA AND CULTURE.

1. *Andhras.*—Earliest references. Satavahana Empire. (B.C. 225—A.D. 225). Origin of Satavahanas and their identity with

Andhras. Important rulers—Satakarni, Gautamiputra Satakarni, Yajna Sri, Pulamayi IV. Arts and crafts; Commercial enterprise and colonisation; Religion; Important places: Nasik, Srikakulam, Dhanyakatakam, Amaravati, Jaggayapeta, Ghanta Sela; Hala's Sapta Sati, Nagarjuna.

2. *Early Kalinga Kingdom.*—Dravidian land; Asoka's Conquest. Kharavela and Hati Gumpha inscription.

3. *Ikshvakus.* (A.D. 210—260) in the Krishna and Guntur areas.

4. *Early Pallavas.*—(A.D. 265—400): Sivaskanda Varma—his grants from Kanchi in Hirahada Galli (near Harpana Halli), Maidavolu and Kandukuru. Vishnu Gopa, Contemporary of Samudragupta (A.D. 340).

5. *Brhat Palayanas.*—(About A.D. 275): Jayavarma Maharaja and Salankayanas (A.D. 275—450). The sun Temple at Peda, Vengi, Hastivarman (A.D. 340)—Revival of Brahmanism and Sanskrit.

6. *Shnukundins.*—(A.D. 350—610): Madhava Varma, ruler on Vengi—Dendalur; Inscriptions found at Epur and Ramathirthalu. Caves at Undavalli, Mogalrajapuram and Sithanagaram.

7. *Later Pallavas.*—(A.D. 400—735): Conflict with Chalukyas of Badami; Mahendra Varma, defeated by the Chalukyas.

8. *Telingana.*—(A.D. 500—1200): Under Early Chalukyas of Badami, Rashtrakutas and Later Chalukyas of Kalyani.

9. *The Eastern Chalukyas.*—(A.D. 624—1232): at Vengi, at Rajahmundry. Rajaraja Narendra (1022—1063). Nannaya Bhatta; Kulothunga Chola Deava's usurpation of Chola Kingdom.

10. *Later History of Kalinga Desa.*—(A.D. 340—1530): Reference in Samudra Gupta's Inscription to Mahendra of Pishtapuram, Svami Datta of Grikotturu; to Devarashtra with Erandapalli. Minor Dynasties—Sakti Varma (Rajolu plates); Chandra Varma and Uma Varma at Simhapuram. Nanda Prabhanjana Varma at Sariyapalli.

The Gangas.—(A.D. 498—1434): Grants of the rulers found at several places in Srikakulam District. Antiquities of Mukhalingam and the nature of the inscriptions. Ananta Varma Ghoda Ganga's exploits and conquest of Orissa. Fall of the Gangas and the rise of the Gajapati dynasty (Orissa) and their conquest of the Telugu country and their withdrawal.

11. *Minor Dynasties of the Telugu Country.*—(A.D. 1100—1206): Velanati Cholas—Battle of the Godavari. Haihayas (A.D. 1112—1206) in the Kona Sima (Godavari)

12. *Kakatiyas and Telingana.*—(A.D. 1089—1323): Important—rulers, Ganapati, Rudramamba, Prataparudra, Mussalman Invasions, Fall of Warrangal (1323); Cultural Progress—Religion, literature, music, dance, architecture and sculpture. Chola Tikka and Manuma Jiddhi at Nellore.

13. *Re-establishment of Hindu Supremacy.*—In Telingana and the Coastal districts (A.D. 1329—47) Prolaya and Kapaya at Warrangal; Reddi Kingdom at Addanki and Kondavidu; Rachakonda Kingdom under Anapota and his successors.

14. *Bhamani Kingdom.*—(A.D. 1347—1556): its conflict with Vijayanagar Kingdom; its break us; Golkonda—Ibrahim Kuth Shah (1543—80). Telugu literature; annexed to the Moghul Empire (1687).

15. *Vijayanagar Empire.*—(A.D. 1336—1565): Origin and growth, as a freedom movement to save Southern India and Hinduism from Mussalman invasion. The effects of Vidyaranya.

Sangama Dynasty—(1336—1486)—Praudha Devaraya (1442—46)

Saluva Dynasty—(1486—1505): *Saluva Narasimha* (1486—1491): Immadi Narasimha (1491—1505): *Tuluva Dynasty*—(1505—76)—Vira Narasimha (1505—09) Krishna Devaraya (1509—29), Achyuta Deva Raya (1530—42) and Sadasiva (1542—76). Ramaraya, the virtual ruler (1542—1565); Fall of Vijayanagar Empire and destruction of the City. Telugu literature and art.

Aravidu Dynasty of Vijayanagar Kings (1565—1675); Tirumalaraya (1570—71)—Penugonda and Chandragiri and Raya Vellore—the Principal seats of the rulers. Telugu literature and revival of Vaishnava religion.

16. *Nayaks of Tanjore.* Raghunath Nayak (1600—34)—Literary and cultural activities; Vijayaraghava Nayak (1634—73) *Madura*—Tirumala Nayak (1623—59); Invasion of Tanjore by Chokkanatha Nayak of Madura (1673).

17. *Nizam.* (A.D. 1724—1950): Asafjah, Viceroy of Deccan, independent of the Mohgul Empire. Hyderabad merged with Independent India. Progress of Literature and Culture.

18. *Telugu Country under British Rule.*—(A.D. 1766—1947): English Vs. French. Northern Circars ceded to the English East India Company (1766); Ceded Districts (1801); Independent India (1947); Andhra Province (1953); Andhra Pradesh (1956). Literary and cultural progress.

SYLLABUS FOR—A. THE HISTORY OF THE TELUGU LANGUAGE; AND B. ELEMENTS OF THE COMPARATIVE GRAMMAR OF THE DRAVIDIAN LANGUAGES.

A. The History of the Telugu language.

1. *General.* The place of Telugu in the Dravidian family of languages. The relationship between Andhra and Telugu. The antiquity and the geographical distribution of the Telugu Language and the people.

2. *Origin and Growth of the Telugu Poetic (Kavya) Dialect*—According to the Stages in the History of Telugu literature:

(*a*) Pre-Nannaya Period; (*b*) Nannaya Period; (*c*) Saiva Period; (*d*) Tikkana Period; (*e*) Srinada and Prabhandha Period; (*f*) Southern Period; and (*g*) Modern Period.

The extent to which the Growth of the poetic dialect has been noticed in the Telugu Grammars and Poetics.

3. *Development of Telugu Prose.*—Its early stages during the early periods. Prose works at Madura and other places in the South. Later stages up to the time of Chinnaya Suri. Contributions to Telugu prose by the Pandits of the age of C. P. Brown. Chinnaya Suri's Prose, an innovation. Followers of Chinnaya Suri. Viresalingam's Prose. The Modern Telugu Movement, a revival of the old Modern Telugu Prose in various patterns.

4. *Language and Dialects.*—Dialects, how they were formed with reference to different localities and to different classes of people in the same locality. The presence of dialectal forms in the poetic (kavya) literature and their recognition by grammarians and lexicographers. Modern Telugu dialects and their significance.

5. *Vocabulary.*—The native element, the so called achcha Telugu words borrowed from Sanskrit (Samskrta-sama and Samskrta-bhava) and from Prakrt (Prakrta-sama and Prakrta-bhava); from other Dravidian Languages; from other Indian Languages like Maharashtras, Oriya, etc., and from foreign languages like English and French.

6. *Words Building.*—Compounds and words with suffixes.

7. *Semantics.*—Changes in meaning and usage in Telugu words—elevation and degradation—Samskrit works used in Telugu with

varying shades of meaning and slightly or widely different meaning; Obsolete and obsolescent words.

8. *Special features of the Telugu Language.*—Arthanusvara Sakatarepha; Accent in Telugu speech and metre; Sandhi—its nature and history; gasadadaradesa and Saraladesa; formation of plurals and their history; case and aupavibhaktika features; Telugu Compounds as distinct from Samskrit Compounds; Verbal forms and derivative words; Karaka and Syntax.

B. Elements of Comparative Grammar of the Dravidian Languages with special reference to Telugu.

1. *Dravidian Languages.*—Origin of the word Dravidian. Enumeration of the Dravidian Languages—Cultivated and un-cultivated The regions where the principal Dravidian languages (Tamil, Malayalam, Kannada and Telugu) are spoken. Their varying relationship with Samskrit. Dravidian element in the North Indian Vernaculars.

2. *Drvidian Alphabets.*—The origin and growth of script. The Telugu—Kannada form and its relation to Brahmi, Vengi and Chalukya scripts. A comparision of the Dravidian Scripts—their adequacy and inadequacy. The sound values and the phonetic nature of the alphabet.

3. *Dravidian Phonology (Fundamentals of)*—

A. Vowel system—Harmonic sequence of vowels.

B. System of Consonants—Telugu pronunciation of Palatals and how it differs that of Tamil; Origin of Cerebrals; Dialecta interchange of Consonants.

C. Euphonic nunnation or nasalisation.

D. Prevention of Hiatus.

E. Dravidian Syllabation.

F. Euphonic displacements of Consonants and of Vowels.

Kannada

(*Vide* Regulations.)

Malayalam

(1) *The study of Classical Literature, Poetry and Prose.*

Poetry:

(i) Selections from Ramacharitham not exceeding 10 patalams.

(ii) Selections from the works of Niranam poets not exceeding 100 stanzas (Verses).

(iii) Selections from Cherusseri about 400 lines.
(iv) Selections from Ezhuthachan about 400 lines.
(v) A suitable portion of a Manipravala Kavya of this period.

Prose :

(vi) and (vii) Suitable prose-works pertaining to this period.

(2) *Study of Modern Literature, Poetry and Prose.*

(i) Two sargas from Mahakavya.
(ii) One Attakkatha.
(iii) One drama (translation of a Classical Sanskrit Drama may also be considered).
(iv) One Khanda Kavya.
(v) Poetical selections from the works of modern poet or poets.

Prose:

(vi) A book on literary criticism.
(vii) Selection of essays on modern thought.

(3) *Study of History of Language and Literature.*

A general study of the origin, growth and development of the Language and Literature.

(4) *Grammar, Prosody and Poetics.*

(*a*) *Grammar* :

Study of Kerala Paniniyam omitting the detailed discussion on the various Grammatical Theories. Only the study of the principles be emphasised.

(*b*) *Prosody :*

Only the important metres discussed in Vrittamanjari be studied.

(*c*) *Poetics :*

A detailed study of Bhasha Bhushanam.

(5) *Comparative Grammar and Philology of the Dravidian Language.*

Reference Book :

'A Comparative Grammar of the Dravidian Languages' by Dr. Caldwell.

B.A.

Part III

GROUP-B—ANCILLARY SUBJECTS.

BRANCH I—HISTORY

(Ancillaries)

Syllabuses.

(i) *Politics.*—Syllabus same as for Branch II—Politics.
(*vide* Syllabus Nos. 12 and 14)

(ii) *General Economics.*—Syllabus same as for Branch III—Social Sciences—*vide* Syllabus No. 23.

(58)

(iii) (*a*) *Syllabus in Outlines of General Philosophy:*

I. *What is Philosophy:*—Branches of Philosophy : Cosmology, Epistemoiogy Ontology, Axiology and Aesthetics.

Relation to other studies : Science, History, Sociology (including Politics and Economics), Religion.

The need for Philosophy: As the synthesis and consummation of other studies—the philosophic outlook and temper.

II. *Divisions of the subject:* Study of Nature, of Man, of God, and of values.

Study of Nature: The concepts of Matter, Motion and Energy, of Space, Time and Casuality. Mechanism vs. Teleology. Creation vs. evolutionism. Materialistic Pluralism and Materialistic Monism. Theories of Evolution as formulated by Darwin, Lloyd—Morgan, Alexander, Smuts and Whitehead.

III. *Study of man*: Socrates's dictum: *Know thyself*: Humanism of Protagoras, Comte, Schiller and Dewy. Theories of Mind: Materialistic, Dualistic or Animistic, Idealistic and Double Aspect theories. Newer Theories: Freudian, Pragmatic, Behaviourist and Gestalt. The approch of Religion to the study of Man. Man as spirit Doctrine of Immortality.

IV. *Study of God*: Proofs for the existence of God and discussion of their Validity. Theories of the nature of God. Deism,

Pantheism, Theism. Immanence and Transcendence of God. God as Creator and moral governor of the universe. God as Law and Love. God as ground and goal. Man's seeking God and God's revelation to man. The best proof of God is to experience him. Mysticism and the Mystics.

V. *Study of Values:* Intellectual, Moral, Aesthetic and Spiritual values. Are values subjective or objective or both ? The concept of eternal values. The triad of Truth. Goodness and Beauty; Inter-relation between them. Transvaluation of values.

Bibliography :

1. Patrick : An Introduction to Philosophy.

2. Cunningham : Problems of Philosophy.

3. Mary Wilton Calkins: The Persistent Problems of Philosophy

4. R. B. Perry : The Approach to Philosophy.

5. J. H. Muirhead : The Use of Philosophy (Harward University Press).

6. Bertrand Russell : Problems of Philosophy.

7. M. Hiriyanna : The Quest After Perfection—Chapters II, III, V and VIII (Kavyalaya Publishers, Mysore).

8. P. N. Srinivasachari : Mysticism.

9. S. Radhakrishnan : An Idealist View of Life, 1951 Edition, pp. 326 to 331

or

(iii) (*b*) Philosophy of Religion : Syllabus same as for Branch III—Social Science *vide* Syllabus No. 19.

(iv) Geography—

(1) Principles of Human Geography—
(Paper I of Group A) *vide* Syllabus No. 31.

(2) Regional Geography—
World and India (Paper III of Group A) *vide* Syllabuses Nos. 33 and 34.

(v) History of Indian Art *vide* Syllabus No. 54.

(vi) History of World Art *vide* Syllabus No. 55.

(vii) History of Indian Music *vide* Syllabus No. 46.

(viii) Musicology and History of Western Music *vide* Syllabus No. 47.

BRANCH II—POLITICS MAIN

(*Ancillaries*)

Syllabus :

(1) History—Syllabus same as for Branch I—History Main *vide* Nos. 3, 4, 6, 8, 10 and 11.

(2) Philosophy.—Syllabus *vide* No. 56.

(3) General Psychology.—Syllabus same as for Branch I Psychology Main *vide* No. 41.

(4) General Economics—Syllabus *vide* No. 23.

BRANCH III—SOCIAL SCIENCES MAIN

(No Ancillary)

BRANCH IV—ECONOMICS MAIN

(*Ancillaries*)

Syllabus :

1. History of India—Paper II—Syllabus same as for Branch I—History Main, *vide* No. 2.
2. Politics: Modern Governments—Syllabus same as for Branch II—Politics Main, *vide* No. 14.

(59)

(4) STATISTICS.

(*Derivation of formulae is not expected in this course*).

Paper I:

Scope of Statistical Methods, nature of statistical data.

Collection of statistical data—Census and sample methods, use of Questionnaire, agency of collection.

Tabulation of data—Methods of classification and tabulation in respect of one or more characters, formation of frequency distributions.

Diagrammatic and graphical representation—Bar diagram, pie diagram, scatter diagram, histogram, frequency polygon, frequency curve, ogive, interpretation of charts and graphs.

Measures of location—Mean, median and mode.

Measures of dispersion—Standard deviation, quartile deviation, deciles, co-efficient of variation.

Association of attributes, Correlation, Co-efficient of correlation and its interpretation—Regression lines and their applications.

Elementary ideas of probability ; descriptive account of binomial and normal distributions; importance of these distributions.

General ideas of statistical populations ; random samples and sampling distributions; basic concepts of statistical reasoning; Standard errors of proportion and mean tests of significance in large samples.

Index numbers—properties of a good index number, method of construction and uses; cost of living index number as an illustration.

Time Series-trend.

Planning of experiments : Sample surveys, elementary ideas.

Books for reference:

Garret, H. E. : Statistics in Psychology and Education.

Edwards, Allen L. : Statistical Analysis for students in Psychology and Education.

Connolly, T. G. and Sluckin, W. : Statistics for the Social Sciences.

Yates, F. : Sampling Methods for Censuses and Surveys.

Allen, R. G. D. : Statistics for Economists.

Tippet, L. H. C. : Statistics (Home University Library Series).

(60)

(3) PRINCIPLES OF COMMERCE.

Economic basis of Commerce—Types of Business Organisation—Sole Trader—Partnership—Partnership Act—Duties, Rights and Liabilities of Partners—Admission, Retirement and Death—Insolvency, Dissolution and winding up—Joint Stock Company—Indian Companies Act—Formation, Memorandum and Articles of Association—Prospectus—Capital and its classes—Shares and Debentures—Statutory Books—Divisible Profits and Dividends—Meetings of Directors and Shareholders—Procedure Amalgamation, Absorption and Reconstruction—Winding up—Holding and Subsidiary Companies—Rights and Duties of Directors, Auditors and Liquidators.

Instruments of Credit and their uses—Sale of Goods—Implied conditions and Warranties—Passing of Property in the goods—Remedies of Buyer and Seller—Hire and Instalment Purchase.

Functions of Banks—Commercial and Central Banks.

Means of Payment—Agency—Rights, Duties and Liabilities—Termination.

Financing of Industries—Large and Small scale Industries—Managing Agency System—Industrial Finance Corporation—State Aid to Industries—Issue of Debentures.

Chamber of Commerce and allied Institutions for promotion of trade.

Advertising and Salesmanship.

Books for Reference:

Evelyn Thomas: Theory and Practice of Commerce.
Stephenson: Theory and Practice of Commerce.
J. C. Mitra: Business Organisation.
Haney: Business Organisation.
O. R. Krishnaswami: Essentials of Commerce.
Dr. B. V. Naidu and Datta: Business Organisation.
A. Palmer: Company's Secretarial Practice.

BRANCH V—GEOGRAPHY MAIN

(*Ancillaries*)

Syllabus:

1. History of India—Paper I. Syllabus same as for Branch I—History Main. *vide* No. 1.
2. Political Theory—Syllabus same for Branch II—Politics Main *vide* No. 12.
3. Philosophy.—
   (i) (*a*) European Logic and Theory of Knowledge or
   (*b*) Indian Logic or
   (ii) Ethics or
   (iii) Outlines of Indian Philosophy or
   (iv) Outlines of European Philosophy from Descartes to Kant
   or
   (v) Outlines of General Philosophy or
   (vi) Philosophy of Religion or

Syllabuses for (i) to (iv)—Same as for Branch I—Philosophy Main, *vide* Nos. 36 to 40.

Syllabuses for (v) (&) (vi)—*vide* Nos. 56 and 19.

4. Psychology—General Psychology—Syllabus same as for Branch I—Psychology Main, *vide* No. 41.
5. Anthropology.—*vide* Syllabuses Nos. 21 and 22.
6. Elements of Statistics—Syllabus *vide* No. 57.
7. Principles of Commerce—*vide* Syllabus No. 58.
8. Economics—Principles of Economics *vide* Syllabus 27.

BRANCH VI—PHILOSOPHY MAIN

(Ancillaries)

Any two from Group-A of the following Humanities Courses for B.A. provided that both subjects are not from the same course.

Psychology, History, Politics, Social Sciences and Economics, *vide* Syllabuses Nos. 41, 3 to 11, 12, 13, 25 and 23.

BRANCH VII—PSYCHOLOGY MAIN

(Ancillaries)

1. Social Anthropology or Cultural Anthropology—Syllabus, *vide* Nos. 21 and 22.
2. Sociology Part I *vide* Syllabus No. 25.
3. Outlines of European Philosophy—Descartes to Kant—Syllabus same as for Philosophy Main, *vide* No. 40.
4. European Logic and Theory of Knowledge or Indian Logic Syllabus. Same as for Philosophy Main, *vide* Nos. 36 and 37.
5. History of World Art —Same as for History of Fine Arts Main, *vide* No. 55.
6. Statistics—Syllabus *vide* No. 57.

BRANCH VIII—INDIAN MUSIC

(Ancillaries)

***Syllabus*:**

1. History of India—Paper I Syllabus same as for Branch I-History Main, *vide* No. 1.

2. History of Fine Arts. History of Indian Art and History of World Art. Syllabus same as for Branch XI—History of Fine Arts, *vide* Nos. 54 and 55.

3. General Psychology, *vide* Syllabus No. 41.

4. Musicology and History of Western Music—*vide* Syllabus No. 47.

5. Philosophy of religion, *vide* Syllabus No. 19.

6. Outlines of General Philosophy, *vide* Syllabus No. 56.

7. Language—(i) Tamil or
(ii) Telugu or
(iii) Sanskrit.

(61)

(i) SYLLABUS FOR TAMIL (ANCILLARY) FOR INDIAN MUSIC—MAIN.

1. The Division of Tamil into Iyal, Isai and Natakam—Its significance and antiquity—References to Isait tamil in Silappathikaram.

2. Ancient Tamil Musical Instruments—The Yal—Its variety, construction and technique of play—References to Yal in Sangam literature—Kudumiyamalai musical inscription.

3. The Pans of Tevaram and Diviyaprabandam—Fifteen Pans Viz. 1. Panchamam, 2. Sikamaram, 3. Puranirmai, 4. Viyazhakkurinji, 5. Kausikam, 6. Senturuthi, 7. Gandara Panchamam, 8. Andalikkurinji, 9. Takkesi, 10. Sevvazhi, 11. Pazhampanjuram, 12. Kolli, 13. Megaragakkurinji, 14. Nattapadai, 15. Sadari—Their lakshnas and their modern equivalents—One song illustrative of each of the above Pans.

4. The metrical patterns of Thirupukal—A study of ten of them with illustrative songs—The melody types known as Talisai, Vannam, Kanni and Sindu—Illustrations from Kalingathupparani, Paraparak Kanni (Thayumanavar) and Kannikal in Thiru Arutpa (Ramalinga Swamigal)—Kavadi Sindu (Annamalai Reddiar).

BOOKS RECOMMENDED FOR STUDY.

1. Isai, Iyal by Sangeetha Kalanithi K. Ponnaiah Pillai.

2. Pannan Kyvali or Yal Nul by A. Varakuna Pandian.

(ii) Telugu will be prescribed later.

(iii) SYLLABUS FOR SANSKRIT AS ANCILLARY TO INDIAN MUSIC—PART III.

1. Poetry—100 verses.
2. Prose—15 Pages.
3. Elements of Prosody and Grammar.
4. 30 musical compositions in Sanskrit selected from standard composers like Jayadeva, Muthuswami Dikshitar, Narayana Tirtha, Swati Tirunal, Sadasivabrahmendra and Thyagaraja.

BRANCH IX—WESTERN MUSIC

(*Ancillaries*)

Any two from the following:

(1) General Musicology and History of Indian Music.
(2) History of World Art.
(3) History of India.
(4) Politics.
(5) Economics.
(6) Philosophy.

(1) General Musicology and History of Indian Music *vide* Syllabus No. 59 below.

(2) History of World Art.—Syllabus same as for Branch XI—History of Fine Arts, *vide* No. 55.

(3) History of India.
(4) Politics.
(5) Economics.
(6) Philosophy

} Syllabus same as for Main Subjects *vide* Nos. 1, 2, 12 to 18, 23, 36 to 40, 56 & 19.

(62)

Syllabus for General Musicology and History of Indian Music.

The two systems of Music: Harmonic and Melodic and their features.

The important scales figuring in the music of the different countries of the Orient and Occident.

Indian Music and its distinctive features. Ragas, Talas, Musical forms and Musical instruments used in Indian Music.

Forms figuring in Art Music, Sacred Music, Dance Music and Operas.

Folk Music and folk instruments.

Notation used in Indian Music.

Types of concerts and instruments used as accompaniments therein. History of Raga concept and Raga classification.

History and evolution of Musical forms.

Origin and development of the five branches of Manodharma sangita.

Evolution of the Vina. Causes for the exit of the Indian harp (Yazh).

Materials used in the manufacture of musical instruments of ancient, mediaeval and modern times.

Obsolete ragas, talas, musical forms, musical instruments and musical terms.

Evolution of concert programme. Origin and development of brindagana.

The different seats of music in the past.

Evolution of the opera and dance drama (Kuravanji nataka and Bhagavata mela nataka).

Circumstances that occasioned famous musical compositions.

Lives and contributions of the following composers:

Purandaradasa.

Narayana Tirtha.

Thyagaraja.

Muthuswami Dikshitar.

Syama Sastri.

Arunachala Kavirayar.

Gopalakrishna Bharati.

Swathi Tirunal.

BRANCH X—DRAWING & PAINTING

(*Ancillaries*)

History of Fine Arts.

Paper I—Indian Art.—Syllabus *vide* No. 54.

Paper II—World Art.—Syllabus *vide* No. 55.

BRANCH XI—HISTORY OF FINE ARTS

(Ancillaries)

(i) Indian History Paper I.—Syllabus same as for Group-A—History Main.—*vide* No. 1.

(ii) History of Greece and Rome up to 395 A.D. Syllabus *vide* No. 3.

(iii) History of Europe from 395 to 1500 A.D. Syllabus *vide* No. 4.

(iv) General Musicology and History of Indian Music *vide* Syllabus No. 59.

(v) Musicology and History of Western Music *vide* Syllabus No. 47.

BRANCH XII—LANGUAGES

(Ancillaries)

(Group B—Ancillary for English Main)

Social History of England (One Paper)

England after the Anglo-Saxon Conquest—An Agricultural society freeman and serbs—Influence of the Church.

Feudal society after the Norman conquest—The Manor and its life—Architecture—Growth of monasteries and Universities.

England in the 14th century—Rise of the country gentlemen—Decline of serfdom—Growth of towns and trade—Effects of the Black Death—The Peasants revolt—Chaucer and literary revival—Wycliffe and the revolt against the church.

Tudor England—The Renaissance and Reformation—Dissolution of monasteries—Social unrest and Elizabeth's social policy—Literary revival in the Elizabethan Age : Spenser, Ben Johnson. Shakespeare and Bacon.

England under the Stuarts—Puritanism—Colonial expansion—social life in Restoration England—the Plague and the great fire—Christopher Wren.

Transition to the 18th century—the landowning oligarchy—an era of contentment—the age of Prose : Addison, Steele, Swift—progress of Science.

The Industrial Revolution—social consequences—the Wesleys and religious revival—Humanitarian and anti-slavery movements—literature: Johnson, Burke, Gibbon.

The French Revolution—social unrest—Redicalism—Cobbett—movement for reform—literature : the Romantic Revival—Byron, Shelly, Keats—Religion : the Oxford Movement.

Victorian England—Railways—Penny Postage Factory Legislation—Co-operative Movement—decline of agriculture—Puritanism—Universal Primary education.

The 20th century—effects of the World wars—Industrial unrest—Social security and the welfare state.

Books recommended : Trevelyan—English Social History.

Wilmot—Buxton—A Social History of England.

Tickner—Social and Industrial History of England.

Group A—Ancillary foy Latin—Main (One Paper)

History of Rome during the Republic (One Paper)

The Early republic 508-451 B.C.—Constitution—Judicial system—Struggle of the orders—Valerio—Horatian laws.

The latin league—Etruscan wars—Samrite and gallic wars—the struggle with pyrrhers—Rome, mistress of Italy.

The Punic Wars—Hannibal—Tacedonian wars—Wars in Spain—'The Scipios and Cato.'

Domestic strife—Tiberians Graeckus—Italian demands for the franchise—Gaius Graeckus and his measures.

Jugurthine war—Marines—Social war—Mithradatic wars—Sulla's dictatorship.

First and Second Triumvirates—War with Serfonius—Consulship of Pompeius and Grassus—The Gakinian and Manilian Laws—The Conspiracies of Catiline—The first Triumvirate—The Luca conference—Caesar's campaigns in Gaul—Caesar and the Senate—Dictatorship and murder of Caesar—Battle of Actium.

Group B—Ancillary for Latin Main—(One paper—alternative).

History of Rome from Agustus to the death of Nero

Agustus—position and powers—reforms : administrative military legal, religious—Public works—birth of Jesus—German Campaigns.

Tiberius—Constitutional changes—German campaigns and revolt in Gaul—plots of sejanus—Crucifixion of Jesus.

Caligula, the megalomaniac—campaigns in Germany and Britain—assassination.

Claudius—domination by Freedmen—Administrative reforms—conquest of Britain.

Nero : Influence of Seneca—Acts of cruelty—compaigns in Armenia—limitation on the powers of the Tribunes—Trial of St. Paul—Revolt of Bondica in Britain—Great Fire in Rome—persecution of christians—revolt in Judea—death of Nero.

Books recommended: Allcroft and Masom—The Tutorial History of Rome

Cary—History of Rome.

Stuart Jones—The Roman Empire.

Group B—Ancillary for Arabic Main—2 Papers (Paper I).

History of the Arabs from 495 A.D. to 750 A.D. (Paper 1)

Pre-Islamic Arabian—Political, social, religious and economic condition of Arabia in the 5th century of christian era—City state of Mecca under Quassy—Abyssinian invasion of Mecca—Birth of Muhammad—Early life—Harb-ul-Sijar—Rebuilding of K a b a—Marriage with Khadija—First revelation.

Ministry of Muhammad—Persecution of the Quraish—Immigrations to Abyssinia—pledges of Aqba—Hijrat to Medina—Prophet as the head of the Commonwealth of Medina—Battles of Badr, Uhad and Trench—Treaty of Hudabiah—Conquest of Mecca—Farewell pilgrimage—Last days of Prophets, life and his death.

Election of Abu Bakr—Suppression of internal disorders—Muslim conquests in his reign—selection of Umar—Muslim conquests—Umar's administration—Usmani election—disturbance during his

reign—assasination of Usman—election of Ali—Battle of Jamal and Siffin—Khanjites—Hasanibn-Ali—End of the orthodox Caliphate.

Muiviyah—Establishment of the first Dynasty in Islam—Yavid and the tragedy of Karbala—Marwar—Abdul Malik—Hajjaj bin Yusuf and his reforms—Walid—conquest of Spain and Sindh—Sulaiman—Omar iln Abdul Aziz—Revival of the orthodox glory—his reforms—Hishavn—department of archives—Decline of the Omayyad power—its causes—Abbasid propaganda—downfall of the Omayyads—750 A.D.

History of the Arabs from 750 A.D. to 850 A.D.

Al Saffab—Al Monsur—Building of Baghdad—Institution of Wizarat—Religion—political aspect of Abbasid Caliphate—Mahidi—Heressies in his period—Shu'liyah movement—Hadi—Harun—Translation bureau—fall of Barmak—War with the Romans—cultural activities under Harun—Baghdad under Harun—The Arabian Nights—His character and achievements—his death—Amin and Mamun—The civil war—Amin's death—Mamun—Mutavilite school—progress of learning—Mamun's death—Mutasim—The rise of the Turks—Decline of the Abbasids—the petty states.

Books recommended for study :—

1. History of Arabs—P. K. Hitt.
2. History of Saracens—Syed Amir Ali.
3. Life of Muhammad—Ghulam Sarwar.
4. Early Heroes of Islam—Salaik.
5. General History of Islam—Professor S. A. W. Bukhari Saheb.

B.Sc. DEGREE EXAMINATION

PART III

Group A—Main Subjects.

1. Mathematics.
2. Statistics.
3. Physics.
4. Chemistry.
5. Botany.
6. Zoology.
7. Geology.
8. Geography.
9. Physiology.

Branch I—MATHEMATICS.

(1)

I Paper—Pure Geometry and Trigonometry.

Concurrence and Collinearity. Properties of triangles. Loci. Harmonic ranges and pencils. Complete quadrangle and quadrilateral. Properties of circles. Inversion. Solid Geometry of line, plane, sphere, right cylinder and right cones, orthogonal projection.

Trigonometry: Full treatment of the properties of triangles. Quadrilaterals inscribed in and circumscribed about circles. Regular polygons. Limits of Sin x/x and Tan x/x as x tends to zero.

Complex numbers. Argand's diagram. De Moivre's theorem and its immediate applications. Summation of elementary trigonometrical series. Hyperbolic functions.

DETAILED SYLLABUS IN PURE GEOMETRY

Concurrency Collinearity:

The use of signs as applied to lines, angles and areas. If two parallel lines are cut by three or more concurrent transversals, the corresponding segments are proportional and the converse.

If X, Y, Z are points in the sides BC, CA, AB of a triangle ABC, such that the perpendicular to those sides at these points are concurrent

then $(BX^2-XC^2)+(CY^2-YA^2)+(AZ^2-ZB^2)=O$

or $BX^2+CY^2+AZ^2=CX^2+BZ^2+AY^2$

and the converse.

If any transversal meets the sides BC, CA, AB of a triangle in D, E, F, then AF. BD. CE. = AE. CD. BF; and the converse.

If the lines joining any point to the vertices A, B, C of a triangle meet the opposite sides in D, E, F then AF. BD. CE. = FB. DC. EA. and the converse.

If two unequal similar figures are similarly placed the lines joining the vertices of one to the corresponding vertices of the other are concurrent.

Properties of Triangles:

The three medians of a triangle meet in a point and this point is a point of trisection of each median and also of the line joining the circumcentre to the orthocentre.

The perpendiculars from the vertices of a triangle on the opposite sides meet in a point, and the distance of each vertex from the orthocentre is twice the perpendicular distance of the circumcentre from the side opposite to the vertex.

Detailed syllabus in Pure Geometry.

The circle through the middle points of the sides of a triangle passes through the feet of the perpendiculars of the triangle and through the middle points of the three lines joining the orthocentre to the vertices of the triangle.

If a perpendicular drawn from the vertex to the opposite side of a triangle is produced to meet the circumcircle then the distance of this point of intersection from the base is equal to the distance of the orthocentre of the triangle from the base.

If D is a point in the side BD of a triangle ABC such that mBD $=n$DC then.

$$mAB^2+nAC^2=mBD^2+nDC^2+(m+n)AD^2.$$

The feet of the perpendiculars drawn on the sides of a triangle from any point P on the circumcircle of that triangle are collinear.

The pedal line of P bisects the line jointing P to the orthocentre of the triangle.

If the vertical angle of a triangle is bisected by a straight line which cuts the base, the rectangle contained by the sides of the triangle is equal to the rectangle contained by the segments of the base together with the square on the straight line which bisects the angle.

If from the vertical angle of a triangle a straight line is drawn perpendicular to the base the rectangle contained by the sides of the triangle is equal to the rectangle contained by the perpendicular and the diameter of the circumcircle.

Loci:

(1) If P and Q are two points on a line passing through a fixed point O, such that OP: OQ is a constant then the locus of Q is a straight line or circle according as the locus of P is a straight line or circle.

(2) If A and B are two fixed points and P moves such that PA: PB is a constant then the locus of P is a circle or a straight line.

(3) Given the base and the vertical angle to find the locus of (i) the centroid, (ii) incentre or excentre and (iii) orthocentre.

Harmonic ranges and Pencils:

Definitions of Harmonic Range and harmonic pencils.

If C, D divide AB harmonically, then A, B divide CD harmonically: If O is the mid-point of AB then $OB^2 = OC. CD$.

A harmonic pencil cuts any transversal in a harmonic range.

If O (ACBD) is harmonic and AO and BO are at right angles, then they are the two bisectors of the angle COD.

If (ACBD) and (AC′B′D′) are harmonic ranges on two lines, AD, AD′, then CC′, BB′, DD′ are concurrent; its dual theorem for harmonic pencils.

The definition of a complete quadrangle and a complete quadrilateral and the proof of their harmonic property.

Properties of the Circles:

Definition of orthogonal circles and of a pair of inverse points with reference to a circle.

It two circles are orthogonal, the diameter of one is cut harmonically by the other; and the converse.

Pole and Polar:

The locus of the harmonic conjugate of a given point P with reference to ends of chords of a circle through it is a straight line perpendicular to the diameter through the point passing through its inverse.

If the Polar of A passes through B, then the Polar of B passes through A. Definition of conjugate points and lines.

If P and Q be any two points and O the centre of a circle, then OP bears to OQ the same ratio as the perpendicular from P on the polar of Q bears to the perpendicular from Q on the polar of P.

If four points form a harmonic range then their Polars with reference to any circle form a harmonic pencil.

The harmonic triangle of the quadrangle inscribed in a circle is a self-conjugate with reference to the circle; and its dual theorem.

Coaxal Circles.

Power of a point with reference to a circle. The locus of a point the powers of which with reference to two circles are equal is a line perpendicular to the line of centres.

The radical axes of the three circles taken two by two are concurrent.

The difference of powers of a point with reference to two circles varies as its distance from their radical axis.

Coaxal systems, intersecting, and non-intersecting. Limiting points—Orthogonal system—Limiting points of a coaxal system are inverse points with reference to any circle of the system; and its converse.

The Polars of a given point P with reference to each circle of a coaxal system pass through a fixed point R, and PR is bisected by the radical axis.

In a complete quadrilateral, the circles on three diagonals as diameters are coaxal.

If a point P moves so that the tangents from it to two circles are in constant ratio the locus of P is a circle coaxal with the given circles.

Centres of Similitude.

In two circles, if any two parallel radii are drawn (one in each circle), the line joining their extremities cut the line of centres in one or other of two fixed points called centres of similitude.

If through a centre of similitude of two circles, a line is drawn cutting the circles the radii, to a pair of corresponding points, are parallel.

If through the centre of similitude S of two circles a line is drawn cutting the circles, the rectangle contained by the distances from S of a pair of non-corresponding points is a constant.

Two circles and their circle of similitude are coaxal.

Inversion:

The inverse of a line with reference to a point, (*i*) on it; (*ii*) not on it.

The inverse of a circle with reference to a point, (*i*) on it, (*ii*) not on it.

The angle at which two curves cut is equal to the angle at which their inverses cut.

If P′ and Q′ are the inverse points of P, Q with reference to O, p and p′ are the lengths of the perpendiculars from O to PQ, P′Q′ then,

$$\frac{P'Q'}{PQ} = \frac{p}{p'} = \frac{K^2}{OP.OQ} = \frac{OP'OQ'}{K^2}$$ where K is the radius of inversion.

In any quadrilateral, the sum of the rectangle contained by two pairs of opposite sides is not less than the rectangle contained by the diagonals.

A pair of points inverse with reference to a circle inverts into a pair of points inverse with reference to the inverse of a circle.

Solid Geometry: One and only one plane can be drawn through any two intersecting lines.

Two planes (generally) intersect in a straight line. If a straight line is perpendicular to each of two intersecting straight lines, at their point of intersection, it is perpendicular to the plane containing them.

Perpendicular and Parallel Planes:

To draw a straight line perpendicular to each of two lines and to prove that it is the shortest distance between them.

The section of a sphere by a plane is a circle.

The common section of two spheres in a circle.

Plane sections of a right cylinder and a right cone.

Orthogonal projection:—Its definition and the following theorems.

Segments of the same straight line project into segments of proportional length while a straight line parallel to the base line is unaltered in its length. Parallel straight lines project into parallel straight lines: If A be the area of a closed curve in Q plane then its orthogonal projection of another plane will be of area A cos θ where θ is dihedral angle between the two planes.

How to project orthogonally a circle into an ellipse and vice versa.

Books for Reference:

1. Russell: Sequel to Elementary Geometry.
2. C. V. Durell: Modern Geometry.
3. Askwith: Pure Geometry.
4. C. V. Durell & Rolson: Trigonometry.
5. T. M. McRobert: Trigonometry, Vols. I, II & III.
6. Siddons and Hughes: Trigonometry.

(2)

II Paper—Analytical Geometry

Two dimensions: The Cartesian equations of the straight line and the circle referred to rectangular axes: the parabola, ellipse and hyperbola referred to their principal axes and the rectangular hyperbola referred to its asymptotes. The general equation of the second degree. The polar equation of the straight line, circle and the conic. Simple problems on the above.

Three dimensions: The straight line, the plane and the sphere. Tangent plane to the sphere. The condition that the general equation of the second degree may represent a pair of planes or a sphere.

Books for reference:

1. Askwith: Analytical Geometry of the Conic Sections.
2. Shackleton Bailey: Analytical Conics.
3. Mccrea: Analytical Geometry of Three Dimensions.

(3)

III Paper—Algebra and Calculus: Paper I

Fuller treatment of algebraic operations.

Elementary theory of numbers. Format's and Wilson's theorem and their generalisations.

Permutations and combinations. Inequalities. Partial fractions. Elementary methods of summation of finite series.

Limits. Convergence and divergence of series. Simple tests. Binomial theorem for a rational index, homogeneous product, exponential theorem for a rational index. Binomial, exponential, logarithmic series. Summation of series based on the above. Fundamental processes of differentiation. Successive differentiation. Leibnitiz' theorem. Simple applications to plane geometry, including curvature, and to Mechanics. Maxima and Minima. Mean value theorem. Graphical interpretation. Partial differentiation. Approxmations.

(4)

IV Paper—Algebra and Calculus: Paper II.

General properties of the equation of the *n*th degree: its roots and co-efficients. Simple transformations of equations. Reciprocal equations. Typical Graphs: $y=a$, $x^n=a/x^n$, $y—o^x$, $y—\log x$. Graphical solutions oc cubic and biquadriatic equations.

Elementary properties of determinants.

Integration as inverse of differentiation. Standard forms. Standard methods of integration Easy reduction formulae. Integration as the limit of a sum. Applications to length of cars, plane areas, areas of surfaces of revolution and volume of solids of revolution, in Cartesian and in polar co-ordinates.

Differential equations of the first and second order of the following types:

I. (1) $\frac{dy}{dx}=\frac{f_1(x)}{f_2(y)}$

(2) $\frac{dy}{dx}=\frac{f_1(x,y)}{f_2(x,y)}$

Where f_1 and f_2 are expressions homogeneous and of the same degree in x and y

(3) $\frac{dy}{dx}=\frac{ax+by+c}{a'x+b'y+c'}$

(4) $\frac{dy}{dx}+Py=Q \text{ or } Qy^n$

II. $a\frac{d^2y}{dx^2}+b\frac{dy}{dx}+c=e^{mx}$

where P and Q are functions of x or $\cos mx$ or $\sin mx$.

a, b, c being constants.

Books for reference:

1. Barnard and Child—Higher Algebra.
2. Ferrar—Higher Algebra.
3. C. V. Durell—Advanced Algebra, Vols. I and II.
4. W. P. Milne—Higher Algebra.
5. Gibson—Elementary Treatise on Calculus.
6. Caunt—Advanced Calculus.
7. Osgood—First course in Differential and Integral Calculus.
8. Middlemiss—Differential and Integral Calculus.
9. Murray—Differential Equations.
10. Ince—Differential Equations.
11. S. L. Green—Differential Equations.

(5)

V Paper—Mechanics.

Resolution and composition of displacements and forces, velocities and accelerations, curves of speed and velocity diagram.

Motion of a particle in one plane under constant acceleration. Simple harmonic motion. Composition of simple harmonic motions. Angular velocity and angular acceleration.

Angular momentum. Moments of inertia in simple cases. Motion about a fixed axis. The pendulum, simple and compound. Determination of g. Work, energy and conservation of energy. Laws of impact. Conditions of equilibrium of a body acted upon by forces in one plane. Moments. Couples. Centres of mass. Simple machines: Lever, Pulleys, Wheels and Axes, Screws, Laws of friction.

(6)

VI Paper—Astronomy.

Formulae of spherical trigonometry without proofs may be assumed. The stars. Rotation of the earth. The celestial sphere. The principal instruments. Determination of latitude and longitude. Distance and magnitude of heavenly bodies. Refraction. Simple problems connected with diurnal motion. Apparent annual motion of the Sun. Aberration. The equation of time. The motion of the moon. Eclipse. The Stellar system.

DETAILED SYLLABUS.

The most conspicuous stars. The principal constellations. The signs of the Zoadic. Double and multiple stars. Variable stars Nebulae, comets and meteors.

The apparent motion of the heavens and its explanations by the rotation of the earth. Arguments and proofs for the earth's rotation. Foucault's gyroscope and pendulum experiments.

The celestial sphere and the different systems of co-ordinates.

The telescospes. Reflectors and refractors. Advantages and disadvantages of the two. The transit theodolite. The transit instrument, meridian circle, the clock. The chronometer. The chronograph. The equatorial. Sextant. Zenith telescope.

Clock error and rate: The right ascension and declination of a heavenly body, latitude and longitude of a place on land or sea. Sumner's mehod.

Form and size of the earth. Phenomena depending on a change of the observer's place on the earth. Parallax (diurnial and annual). Distance, and magnitude of the sun, moon and the planets and stars.

The atmosphere and its effect on astronomical observations. The tangent formula for refraction. Cassini's formula. Twilight.

Simple problems connected with the diurnal motion. The apparent annual motion of the sun and its consequences. The ecliptic and its obliquity. The position of the ecliptic at any given instant. The equinoxes and selstices. Determination of the first point of Aries and the obliquity of the ecliptic. Effects of precession and nutation.

The earth's motion round the sun. Aberration and its effects. Kepler's laws and Newton's deductions therefrom. True anomaly mean anomaly and lengths of the seasons. Siderial time. Apparent solar time. Mean solar time. Equations of time. The Calendar. Indian Standard time.

The motion of the moon and her phases. The nodes and their motion. The moon's siderial and synodic periods. Eclipses and their causes. Ecliptic limits. Number of eclipses in a year. The Saros.

The Solar system and the direct and retrograde motions of planets (coplanar circular orbits). The stationary positions, duration of direct and retrograde motions. Phases of planets.

A general descriptive idea of the stellar system.

Books recommended for study:

1. Barlow and Bryan: Astronomy.
2. Russell, Dungan and Stewart: Astronomy, Vol. I.
3. Spencer Jones: General Astronomy, Chapters XII to XIV, outlines only.
4. Text-book of Astronomy by G. V. Ramachandran.
5. Parker: Astronomy.
6. Astronomy by Dr. H. Subrahmanya Ayyar.
7. Foundations of Astronomy by W. M. Smart.

Books for reference:

1. Russell, Dungan and Stewart: Astronomy, Vol. II.
2. Hutchinson: Splendour of the Heavens, Vol. II.
3. Godfrey: Astronomy.
4. Spherical Astronomy by W. M. Smart.
5. Ball: Spherical Astronomy.

There shall be six papers of 3 hours' duration each. The maximum marks for each shall be 100.

Branch II—STATISTICS

The topics allotted to the different papers are as follows:

(7)

Paper I.

Rules of probability—Addition and multiplication, conditional probability and independence. Random variables, probability distributions, mathematical expectation, moments. Bernoulli's theorem without proof. Binomial and its limiting forms, Poisson and normal distribution. Bivariate normal distribution.

Interpolation, Gregory-Newton formula, central difference formulae, forward and backward differences, inverse interpolation.

General nature and scope of statistical methods, collection of data—census and sample methods. Classification by categories and by measurements. Discrete and continues variation. Tabulation. Graphical and diagrammatic representation, Logarithmic graphs.

Measures of location and dispersion, co-efficient of variation, skewness, β_1 and β_2.

(8)

Paper II.

Association of attributes, contingency tables, correlation—co-efficient of correlation, concept of regression lines and their determination.

Method of least squares normal equations, fitting Polynomials.

Fitting of Binomial, Poisson and Normal distributions.

Statistical population and random samples. Concept of a sampling distribution. Standard errors; large sample tests.

Tests of significance with observed correlation co-efficients using Fisher's z-transformation.

Distributions of $\overline{X}$, s, t, X^2 and F in normal samples (without derivations).

Tests based on X^2, t and F distributions.

(9)

Paper III.

Analysis of variance, one and two-way classification in general. Application to the analysis of randomised blocks and Latin squares in Design of Experiments.

Sample surveys—choice of a sample, random, stratified and systematic; errors of estimates in simple cases, use of questionnaire, organisation of a large scale sample survey.

Economic statistics—construction and use of index numbers of prices, cost of living and business activity indices. Elementary analysis of time series, determination of trend, seasonal indices.

Vital Statistics—Birth and death rates, corrected and standardised rates, mortality tables, application to life insurance. Census of population in India, a critical study.

(10)

Paper IV.

In addition to the Pre-University course in Mathematics the following should be covered:

Algebra: Permutations and combinations. Binomial theorem for positive integral and rational indices. Elementary properties of determinants and matrices. Simple transformations.

Geometry: Equation of parabola, ellipse, hyperbola referred to principal axes. Asymototes of a rectangular hyperbola. General equation of the second degree.

Theory of Equations: Graphical representation of simple functions. Roots of *n*th degree equation and their connection with the co-efficients of the equation.

Calculus: Concept of a function. Idea of a limit, limits of sin θ/θ, tan θ/θ as θ tends to zero. Definition of differential co-efficient, derivatives of sums and products. Successive differentiation. Leibnitz theorem. Geometrical interpretation of the derivative, equation of the tangent and normal—Maxima and minima of a function of one variable. Mean value theorem. Continuity and differentiablity of functions of two variables. Partial differentiation.

Exponential and logarithmic series. Taylor's series. Elementary methods of summation of series.

Integration as a reverse process of differentiation. Indefinite integrals. Integration by substiution, by parts. Integration of standard forms. Reimann integration. Definition of arcs, areas and surfaces. Multiple integrals, infinite integrals. Gamma and Beta functions. Simple differential equations of the first and second orders.

Papers V, VI (Practical):

Practical instruction must provide for the use of desk calculators and statistical tables. Desk calculators will not however be necessary for answering the practical papers. The practical record which must be submitted for examination, should contain the analysis of typical illustrations based on the practical problems mentioned below.

LIST OF PRACTICAL EXERCISES IN STATISTICS.

1. Formation of a frequency table with about 1,000 observations.
2. Bivariate frequency tables.
3. Simple graphical representations: bar diagram; pie diagram; scatter diagram.
4. Preparing histograms, frequency polygons, frequency curve.
5. Cumulative frequency tables, ogive, Lorenz curve.

6. Logarithmic graphs, $y = cx^k$, $y = e^x$.
7. Calculation of averages from a frequency table.
8. Measures of dispersion. Co-efficient of variation.
9. Skewness. Moments. β_1 and β_2.
10. Using a bivariate table for calculating a correlation co-efficient and regression lines.
11. Fitting a parabola (of the second degree) by the method of least squares.
12. Formation of a binomial distribution by model sampling by, experiments with coins, with dies and with beads in an urn.
13. Model sampling. Use of random numbers. Method of drawing random samples from given data.
14. Sampling distribution of the proportion, by experimental sampling.
15. Sampling distribution of the mean, by experimental sampling.
16. Fitting of Binomial, Poisson and Normal curves. (Graduation is not expected for the Normal curve).
17. Interpolation with equal intervals.
18. Inverse interpolation.
19. Test of independence in a contingency table.
20. Large sample tests: proportions.
21. Large sample tests: means.
22. Tests of goodness of fit: χ^2.
23. Small sample tests for means, and the difference between means.
24. Testing a correlation co-efficient, using the z-transformation. The difference between observed correlations.
25. Analysis of variance. Use of the F-test. One-way classification, with equal and unequal numbers.
26. Randomised blocks.
27. Latin square.
28. Construction of index numbers.
29. Estimation of trend by moving averages.
30. Computation of seasonal indices.
31. Corrected and standardised birth and death rates.
32. Calculation of expectation of life from a Mortality Table.

Books for Study:

1. Hoel, S. P.: Introduction to Statistics.
2. Cramer, H.: Elements of Probability and Applications.

Books for Reference:

1. Cochran, W. G.: Sample Surveys.
2. Freeman, H.: Mathematics for Actuarial Students.
3. Uspensky, J. V.: Introduction to Mathematical Probability.
4. Johnson, M. L. and Tetley, H.: Statistics.
5. Pearl, R.: Medical Biometry and Statistics.
6. Yule, G. U. and Kendall, M. G.: Introduction to Statistics.
7. Croxton and Cowden: Applied General Statistics.

Branch III—PHYSICS

SYLLABUS.

(11) to (15)

Mechanics.

Preliminary: Fundamental and derived units—Standards of length mass and time ; Measurement of length—Vernier—Backward and forward vernier ; calipers—Screw gauge—Spherometer ; mass—Spring balance—Comman balance—Chemical balance ; measurement of time—Simple Pendulum; Clock's working.

Dynamics: Kinematics : Displacement speed ; Velocity; acceleration of a particle moving in a straight line—uniform and variable; composition and resolution of displacements, velocities and accelerations. Equation of a particle moving in a straight line with uniform acceleration ; angular velocity and angular acceleration. Relative velocity and relative angular velocity; vectors in general.

Kinetics: Newton's Laws of motion ; principle of inertia; Definition of force, momentum, impulse, impulsive force. Measurement of force; Atwood's machine, conservation of momentum; Recoil of a gun; Jet propulsion and turbines; work, power, energy; Conservation of Energy; Gravitational and absolute units; Dimension of units; vertical motion of body under gravity—Curvilinear motion ; Hodograph ; parabolic motion of projectiles; Range on a horizontal and inclined plane ; Constrained motion under Gravity ; motion on a

smooth inclined plane ; motion in a Circle under uniform velocity; Normal acceleration ; Centrifugal and centripetal forces ; Banking of curves. Conical pendulum. Centrifuge and its application.

Impact and Collision : Impact of a particle on a plane ; Co-efficient of restitution ; Direct impact between two spheres ; Oblique impact between two spheres, Loss of Kinetic energy ; Impact of inelastic bodies.

Simple Harmonic Motion: Characteristics. Analytical expression —Composition of two simple harmonic motions in the same and perpendicular directions having the same period. Equation of a simple harmonic wave.

Dynamics of rigid bodies: Rotation of a rigid body about a fixed axis; moment of momentum ; moment of inertia ; law of parallel and perpendicular axes ; Calculation of moment of inertia of bodies of regular shape in simple cases ; kinetic energy of a rotating body; relation between applied couple and angular acceleration ; Acceleration of a rigid body down an inclined plane ; Ball rolling on a concave surface; Fly Wheel.

Acceleration due to gravity: Simple pendulum ; Compound Pendulum, equivalent simple pendulum; Borda's pendulum. Reversible pendulum, Kater's pendulum ; Bessel's Correction ; Bifilar pendulum—Non-parallel threads ; Comparison of moments of inertia; Torsional pendulum; Determination of moment of inertia ; 'g' by Spiral Spring.

Dimensions: Theory and use of dimensional equations.

Statics:

Force: Vectors ; Resultant ; Equilibrant ; Parallelogram law; Composition and resolution of forces. Forces at a point and parallel forces; Conditions of equilibrium of a particle acted on by several coplanar forces (1) Two forces, (2) Three forces at a point ; moments and theorems of moments. Couples and moment of a couple.

Friction: Laws of Friction ; Definition of μ and λ Angle of friction; cone of friction ; verification of $\tan \theta = \mu$; and θ equal to λ: Inclined plane ; Friction Clutch.

Simple Machines: Effect of friction ; Mechanical advantage ; Velocity ratio ; and Efficiency ; Levers—Balance—Requisites and

Characteristics ; Sensitivity ; Pulleys ; Wheel and axle ; Screw ; Wedge ; Inclined plane.

Centre of Gravity—plane figures ; Pyramid, Cone, Tetrahedron, Sector, Solid and hollow hemisphere. Virtual work and its application.

Hydrostatics: Liquid state; Pressure and thrust ; pressure at a point ; Pressure and thrust on the base, and vertical sides ; Lateral pressures ; Total thrust ; Centre of pressure. Calculation in simple cases. Variation in the position of Centre of pressure, when the lamina is lowered. Pascal's Law.

Principle of Archimedes: Thrust on Curved surfaces ; Laws of floating bodies—Common hydrometer calibration; Nicholson's hydrometer—Conditions of equilibrium of floating body. Different methods of determining relative density. Stability of equilibrium of floating bodies. Metacentre, Metacentric height determination.

Atmospheric Pressure: Barometers. Corrections, Boyle's Law; Fortin's Barometer, Aneroid Barometer, Manometers, Pressure gauges, Variation of pressure with altitudes—Derivation of expression—Determination of heights by barometer. Compression pumps, Exhaust pumps. Cenco hyvac pump ; Diffusion pump ; Waran's pump. Measurement of low pressures—Mcleod gauge—High Vacuum Technique—Centrifugal and force pumps.

General physics.

Gravitation and Gravity: Newton's Laws of Gravitation, Kepler's Laws—Gravitation constant, mass and density of Earth—Experiments of Cavendish, Boys and Poynting. Methods of finding 'g'. Methods of comparison of 'g' at various places. Effects of latitude and rotation of the earth on 'g'. Variation in 'g' due to altitude—Variation in 'g' below the surface of the earth. Potential at a point due to a particle, spherical shell and solid sphere.

Elasticity: Stress, strain, modulus of elasticity ; Hooke's law ; strains due to a simple longitudinal pull; elastic limit ; elastic fatigue. Poisson's ratio, compressibility and rigidity of solids; Young's Modulus and its expression in terms of (1) n and k (2) n and σ. Simple twisting of wires of circular cross-section by couple at right angles to its length.

Torsional rigidity: Torsional balance. Searle's method of finding n, q and σ. Bending in one plane of bars of simple Cross sectional area (Rectangular and circular). Relation between the bending moment at a point and curvature of neutral axis; q by uniform and non-uniform bending. I form of girders. Oscillations of a cantilever—Compressibility—and elasticity of gases. Regnault's experiments.

Diffusion: Graham's experiments ; Fick's law. Analogy between diffusion and heat conduction—Determinations of the co-efficient of diffusion.

Osmosis : Semipermeable membranes—Laws of Osmotic pressure—Measurement of osmatic pressure—Vapour pressure of solutions, elevation of boiling point of solutions—Depression of freezing point—Determination of molecular weights. Abnormal value of osmotic pressure of electrolytes.

Viscosity: Stream line, turbulent and vortex motion of fluids. Critical velocity ; Poisoiulle's flow and experimental determination of the co-efficient of viscosity. Comparison of viscosities ; Stoke's formula, applications. Lubricants.

Surface Tension: Capillary phenomena and their explanation by surface tension; Molecular theory of surface tension ; Surface energy; the angle of contact—Neumann's triangle. Measurement of surface tension by (1) Capillary rise and (2) torsion balance; Force between two plates due to a thin film of liquid between them. Difference of pressure on the two sides of a curved liquid surface due to surface tension.

Expression for the excess of pressure p in spherical and cylindrical drops and bubbles—Energy consideration. Measurement of surface tension based on the above—Drop weight method; Quincke's method; Jaeger's method ; variation of surface tension with temperature ; Interfacial tension between liquids ; spreading of one liquid on the surface of another; surface films—Mono-molecular layer, experimental methods of determining interfacial tension—Relation between pressure surface tension and curvature ; conditions for drop forming.

Heat.

Thermometery Heat and temperature. Thermometers, fixed points —Mercury thermometers. Defects of mercury thermometer. Gas thermometers—Resistance thermometers—Thermoelectric thermometers. Their relative merits and uses. Measurement of high and low temperatures. Pyrometers ; Special thermometers—Maximum and minimum thermometers—Beckmann's thermometers.

Expansion : Solids, liquids and gases—Co-efficient of linear expansion of a solid (*Alpha*) Superficial expansion (β) and cubical expansion (γ) experimental methods of determining *Alpha*, β and γ. Variation of density with rise of temperature. Apparent and absolute expansion of liquids—their relation. Determination of co-efficients of apparent and absolute expansion.

Anomalous expansion of water and its consequences—Volume co-efficient and pressure co-efficient of a gas and their equality. Charles' Law. Absolute Zero and Absolute Scale of temperature. Gas equation (isothermal)—Gas constants. Compensated pendulum. Balance wheel of a watch correction for barometer scales.

Calorimetry : Units of heat ; specific heat of solids, liquids and gases—Changes of state, solid to liquid and liquid to gas—Laws of fusion, evaporation and boiling, latent heats. Radiation correction total heat of steam, experimental determination of specific heat and latent heats ice and steam calorimeters. Vapour pressure and temperature. Determination of vapour pressure. Effect of curvature on vapour pressure.

Kinetic Theory: Postulates ; Pressure of an ideal gas, Boyle's law ; Charles' law and Avagadro's Law—Mean free path. Boltzman's Law, Degrees of freedom—Deviations from Boyle's Law—Amagat's experiments—Andrew's experiments, Van der Waal's equation of state and critical constants. Law of corresponding states.

Low temperatures: Production of low temperatures—Liquefaction of gases Joule-Thompson effect—Regenerative cooling—Linde's and Claude's methods. Measurement and uses of low temperatures.

First law of Thermodynamics: Experimental determination of (1) Searle's method. (2) Rowland's method, (3) Joule's method and (4) Callendar and Barnes' method.

Isothermal and Adiabatic changes : Two specific heats of a gas. Detemination of C_p and C_v. Adiabatic equation of a gas. Difference between the two specific heats of a gas. Mayers method of finding J. Determination of γ Kundt's Tube method, Clement and Desorme's method—Significance of γ for gases from Boltzman's equipartition law—Work done in isothermal and adiabatic expansions.

Heat engines and their general principle of working: Carnot's engine—Indicator diagram; efficiency—Carnot's theorem. Otto cycle, Rankine Cycle and Diesel Cycle.

Second Law of Thermodynamics: Thermodynamical scale of temperatures (Kelvin's scale) Ideal gas scale; Refrigeration. First and second latent heat equations. Change of boiling point and melting point—Entropy and change in entropy for a reversible cycle; Entropy temperature diagram ; Entropy and available energy.

Conduction, Convection and Radiation: Thermal conductivity and thermometric conductivity, Searle's method, Forbe's method, Lee's disc

method, Convection currents, Prevost's theory of exchanges, Emissive and absorptive powers—Radiation laws. Stefean's Law, Newton's Law, Kirchoff's law. Pyrometers—Total Radiation type, disappearing filament ; Solar constant. Effective temperatures of the sun and stars. Pyrheliometers.

Sound.

Dynamical bass: Characteristics of musical note, equation of a wave, progressive waves and stationary waves, their characteristics ; Lissajous figures. Beats—analytical expression and uses. Forced vibrations and resonance. Velocity of sound in a solid, liquid, and a gas—Transverse and longitudinal waves ; Derivation of expressions $V=\sqrt{E/P} = \sqrt{\frac{Yp}{P}}.$

Laws of transverse vibrations of stretched strings : Sonometer, Determination of frequency and mass per unit length Meldes's experiment—Velocity of sound in a rod, Kundt's Tube—Determination of γ for gases—Vibration in air columns, organ pipes. Vibrating plate—Chaldni's plate—Synthesis and analysis of sound ; Resonators—Manometric Flames—Cathode ray oscillograph—Acoustics of buildings.

Musical scales—Equal temperament—Musical instruments, general principles—Acoustic measurements—Frequency, Wave length and velocity in air—Electrically maintained tuning forks—Ultrasonics.

Light.

Geometrical Optics: Rectilinear propagation of light : formation of shadows—Solar and lunar eclipses. Intensity of illumination—Illuminating power, units—Cosine law—Photometers—Rumford's, Bunsen's Joly's, Lummer brodhun, Flicker and photo electric photometers—Illuminating sources, various kinds.

Laws of reflection of light at plane surfaces: Multiple reflection in parallel and inclined mirrors—Images—Definition and characteristics—Sextant ; single and double optical levers.

Reflection at spherical surfaces: Convex and concave mirrors—Principal focus and focal length—Relationbetween the focal length and radius of curvature—Images formed by concave and convex mirrors and the relation between *u*, *v* and *f*. Experimental determination of focal length and radius of curvature of spherical mirrors—Characteristics of images.

Refraction at plane surfaces : Laws—Experimental verifications. Refraction through a parallel glass slab, expressions for refractive index and lateral displacement—Relative positions of objects and images due to refraction through a slab (1) when the object is close to the slab (2) when the object is at a distance from it. Expression for the shift—total internal reflection and critical angle—Total reflecting prism—Comparison with plane mirrors—Measurement of critical angle and refractive index—Refractometers (Pulfrich and Wollaston) Consequences of refraction—Refraction through a prism—Conditions for minimum deviation—Deviation through a right angled prism and (narrow angled prism when light is incident normally—Derivation of $\mu = \text{Sin}\,(A+D)/2/\text{Sin}\,A/2$—Derivation of $(\mu-1)\,A = D$ for narrow angled prism—Spectrometer, and determination of refractive index—Dispersion—Combination of prisms—Achromatic combinations—Direct vision spectroscope—constant deviation prism.

Refraction at spherical surfaces: Lenses—convex and concave—Focal length ; optic centre; relation connecting u, v and f. Characteristics of the images formed. Relation between focal length of the lenses, refractive index of the material of the lenses and the radii of the curvature of the surfaces—liquid lenses—Determination of the refractive index of the liquid—Combination of two thin lenses (1) in contact, (2) separated by a distance—Determination of the focal length of the lenses—Focal powers—Chromatic and spherical aberration—Achromatic combination of lenses—Optical instruments, telescopes—Terrestrial, Galelean, Refracting and reflecting telescopes—Magnifying powers—Microscopes, simple and compound, oil immersion—Aplanatic surface—eye—Photographic Camera epidiascope—Projection lantern—Cine projectors—Binoculars—Eyepieces—Defects of the eye. Correction—Constant deviation spectrometer—Pure spectrum—radiation and absorption spectra—Solar spectrum, Fraunhofer lines—Rainbow.

Physical Optics: Velocity of light ; Romer, Bradley, Fizeau, Foucault and Michelson's rotating mirror experiments—Significance of Foucault's experiments—Support to wave theory—Wave theory and Corpuscular theory—Huygen's theory of wave propagation—Explanation for reflection and refraction at plane and spherical surfaces; formula for lens ; total internal reflection.

Interference: conditions. Young's Fresnel's Bimirror and Biptism experiments for the determination of wave lengths. Shift in the central band when a thin plate of transparent material is introduced. Lloyd's mirror—Colours of thin films reflected and transmitted—Newton's rings, reflected and transmitted systems—

Angle of wedge, testing the planeness of surface—Simple interferometers, Jamin and Rayleigh.

Diffraction : Rectilinear propagation—Diffraction at a straight edge—Rectangular aperture—narrow wire—Circular disc—Diffraction grating (transmission). Minimum deviation; Zoneplate, comparison with lens—Resolving and dispersive powers of grating and prism spectrometers—Resolving power of a telescope.

Polarisation: Transverse nature of light waves—Plane polarised light by reflection, refraction and double refraction—Brewster's law—Pile of plates—Reflecting polariscope—Huygen's theory of double refraction—Construction of wavefronts—Elliptically and circularly polarised light, production and analysis—Half-wave plates and quarter wave plates—Nicol—Polaroids—Double image prisms—Verification of Huygen's theory—Rotation of plane of polarisation—Fresnel's explanation—Saccharimetry—Polarimeter, half shade and biquartz.

Magnetism.

Magnetic phenomena: Poles: Inverse square law; force between poles—Unit poles—Magnetic field—Couple on a magnet in a magnetic field, magnetic moment—Intensity of field (1) at a point along the axis 'End-on' position, (2) at a point along the equatorial line 'Broad side on' position (3) Field at any point for a short magnet. Neutral point and mapping of field; force and couple between two magnets (1) placed axially and (2) placed at right angles—Earth's magnetic field—Magnetic elements and their measurements—Variation of these elements—Magnetic compass—Gyrostatic compass on ships.

Magnetic potential: Magnetic shell—Strength—Potential at a point in the field of a shell—Potential energy of a small magnet in a magnetic field—Magnetic potential (1) along the axis (2) along the equator and (3) at any point for a short magnet—Intensity of magnetisation—Tangent law—Deflection magnetometer—Tan A and Tan B positions. Comparison of M and H and verification of inverse square law—Vibration, magnetometer, determination, m, M and H.—Gaus's theorem, Coulomb's modification—Total normal magnetic induction.

Magnetic properties: Magnetic induction—Permeability—Susceptibility and relation between H, I, μ, B and k—Determination of permeability (Ferromagnetic substances only) B-H and I-H curves—Magnetic hysterisis—Cycle of magnetisation and energy dissipated in a cycle of magnetisation. Dia, Para and ferro magnetic substances —Molecular theory of magnetism. Electron theory of magnetism and qualitative explanation of dia, para and ferro magnetism.

Electricity.

Electrostatics: Fundamental phenomena: Charging by induction —Gold leaf electroscope—Faraday's ice pail experiments—Insulators and conductors—Coulomb's law, verification—Action of points, lightning conductors—Force between charged bodies—Inverse square law—Dielectric constant—Gauss theorem; field intensity due to (1) a uniform surface distribution of electricity on a sphere, (2) an infinitely long conductor and (3) an infinite plane—Intensity due to a uniform volume; distribution of electricity in a sphere.

Electrostatic potential: Potential at a point—Equipotential surfaces —Potential gradient and field intensity—Charge resides on the surface of the conductor—Electrostatic shielding; Cavendish experiments—Verification of the inverse square law; Coulomb's law—Mechanical stress on the surface of charged conductors—Relation between potential and energy of an insulated charged conductor—Electrostatic field—Lines and tubes of force—Faraday tubes—Interpretation of force between charged bodies. Electrostatic machines: Electrophorus; Wimshurst's machine—Van de Graaf's high voltage generator.

Capacity: Capacity of an isolated sphere—Influence of neighbouring charge on the capacity of a condenser—Condenser in series and in parallel—Spherical—Cylindrical and parallel plate condensers—Force between parallel plate condenser with different dielectrics—Guard ring —Kelvin absolute electrometer—Measurement of potential difference—Energy of a charged condenser—Sharing charges—Loss of energy in sharing the charge. The quadrant electrometer—Hetrostatic and ideostatic uses—Measurement of p. d., comparison of capacities and ionisation current.

Capacity of a condenser: Effect of capacity when the space between the plates is filled with a dielectric—Faraday tubes in dielectrics—Polarisation in dielectrics—Lines and tubes of induction, Gauss theorem for a field with dielectric—Polarisation and electric dipole—Capacity of a parallel plate condenser when a slab of dielectric is inserted between the plates—Force between the plates when they are insulated and when the dielectric is introduced—Measurement of dielectric constant with absolute and quadrant electrometer.

The method of electrical images: For a small body placed near an infinitely conducting plane maintained at zero potential—Calculation of the force and charge.

Electrodynamics—Magnetic fields of currents—Currentmeasurement: Ampere's theorem, equivalent magnetic shell—Magnetic field of a linear current element—Field on the axis of a circular current—

Tangent galvanometer—Helmholtz Galvanometer—sensitive mirror galvanometer—Moving needle type and coil type—Sensitivity—magnetic field of infinitely long straight conductor carrying current—Magnetic field in a solenoid—Magnetic field and induction in a solenoid with an ironcore—Forces on a straight conductor in a magnetic field—Force between two straight parallel wires carrying current—Force between two circular coaxial coils of nearly the same diameter placed close together—Electrodynamometer—Kelvin's ampere balance—Determination of international ampere in absolute electromagnetic units.

Metallic conduction and resistance : Ohm's law—Definition of resistance—Unit—Verification of law—Combination of resistances in series and in parallel; specific resistance conductivity—Shunts—Universal shunt—Distribution of a steady current in a net work—Kirchoff's laws, application to Wheatstones net work—P.O. box, metre-bridge and Careyfoster's bridge—Variation of resistance with temperature—Callendar and Griffith's bridge—Ammeter and voltmeter.

Electrolytic conduction : Faraday's Laws of electrolysis, electro-chemical equivalent—Ions—Conduction through solutions of electrolytes—Faraday—The verification of Faraday's laws—Equivalent conductivity—Arrhenius theory—Strong and weak electrolytes—Hittorfs' diagram—Transport numbers—Absolute velocities of ions.

Electromotive force:—Contact potential—Electrode potential—Simple Voltaic Cell and its defects. E.M.F. of a cell—Internal resistance—Daniell's Cell, Leclanche's Cell, Dry cell, accumulators, acid and alkali type, standard cell—thermodynamics of reversible Cell—Gibb's Helmholtz equation—Calculation of e.m.f. of a Daniell cell from chemical data.

Electrical Measurments :—Measurement of emf, current and resistance by potentiometer—Internal resistance by potentiometer—The ballistic galvanometer, suspended needle and coil type—logarithmic decrement—Constant of a ballistic galvanometer—Measurement of absolute capacity of a condenser; comparison of electromagnetic and electrostatic units of capacity—Heating effects of current, fuses; determination of J.

Thermoelectricity :—Seebeck's effect and Peltier effect—difference between Peltier and Joule heating effect—Law of intermediate metals and law of intermediate temperatures—Experimental demonstration and determination of Peltier co-efficients—Thomson effect—Experimental demonstration—Thermodynamics of thermoelectric circuits—Peltier and Thomson co-efficients as functions of temperature—thermo

emf as function of temperature—thermoelectric power and thermoelectric diagram, measurement of emf of thermocouple—thermoelectric pyrometer and thermopile.

Electromagnetic induction:—Faraday's experiments—Lenz's law—Expression for the induced emfs. Faucault's currents—Flux linked with a circuit due to current—co-efficient of self induction—co-efficient of mutual induction, work done—co-efficient of coupling $= M/\sqrt{L_1 L_2}$ Calculation of co-efficient of induction in simple cases—Standard solenoid—Instantaneous value of emf. induced in a circuit rotating in a magnetic field—Growth of current in a circuit containing inductance capacity and resistance when a steady emf is applied ; the decay of current when emf is removed; time constant of the circuit. Induction coil—work done in establishing a steady current in a circuit—the energy in the electromagnetic field due to a current in the circuit.

Calibration of a ballistic Galvanometer using a standard solenoid —Hibbert's standard and Earth inductor—determination of dip—Experimental determination of co-efficient of self and mutual induction —experimental determination of international Ohm in absolute electromagnetic unit—charging and discharging with resistance—Measurement of high resistance.

Alternating current:—Rotating coil and motor effect of Faraday, current through a circuit containing inductance and resistance, emf in a circuit with resistance inductance and capacitance—impedance, reactance—R.M.S. values of the emf and current—power in A.C. circuits; Choke, power factor of a choke—Wattless current—Oscillating charge and discharge. Amplitude, phase and frequency—High frequency oscillatory currents—Tesla coil; skin effect—Transformers, energy loss, iron loss and copper loss—Transmission of power-measurement in A.C. circuit—Determination of frequency by sonometer—H.F. measurements—Hot wire ammeter—Transformer for extending the range of ammeters and voltmeters.

A.C. and D.C. Generator—Distribution system, shunt, series and compound wound generators and their characteristics—series and shunt wound D.C. motors and their characteristics, uses—Induction motors—efficiency of a motor.

Simple applications of electricity—Telegraphy—Telephony—Microphones and loudspeakers—Electric lighting—Heating, efficiency of electric lamp—Sodium vapour lamp—Mercury vapour lamp—Fluorescent lamp—arc lamp.

Modern Physics.

Spectroscopy :—Line and band spectra—series spectra—infra red and ultraviolet spectra—transformation of radiations (fluorescence and phospherescence)—Doppler's effect—Its application in lights.

Electronics :—Series circuit, parallel circuit, series parallel circuit —Resonance—Sharpness of tuning—resistance in resonance circuit —Electromagnetic waves. The tuned circuit—crystal rectifiers—valves—diode and triode, their characteristics—Triode as rectifier and amplifier—Rectification of alternating currents—Half wave and full wave rectifiers—Mercury arc rectifier—Simple receiver using radio frequency and audiofrequency; amplification and resistance capacity coupling—triode valve as generators of oscillations—Simple ideas of modulation—Elements of broadcasting and reception—Aerials—Ionisation layers—Atmospherics—Principles of television—Elementary ideas of Radar.

Discharge of electricity through gases :—Cathode rays; Specific charge e/m by Thomson's method and Millikan's experiment on electronic charge—Cathode ray oscillograph—Thermionic emission—Valves—Photoelectric phenomena and their applications. Positive rays; E/M, Thomson's positive ray method—Aston's mass spectrograph, isotopes.

X-rays :—Production and properties—Gas and Coolidge Tubes —X-ray plant installation—X-ray diffraction—Bragg's law—X-ray spectrometer, characteristic X-rays, Moseley's law—Compton effect, Change of wave length (no theory).

Structure of the Atom :—Thomson, Rutherford, Bohr Models of the atom—Hydrogen Spectrum—Balmer, Lymann, and Paschen series.

Radioactivity :—General properties, half period—Alpha, Beta and Gamma rays—Geiger counter—ionisation chamber; Wilson's Cloud Chamber—Artificial transmutation—High Voltage generator--Cyclotron *Induced radioactivity*—Positron and Neutron. Cosmic Rays—Mesons.

Wave nature of matter :—De broglie's theory—G.P. Thomson's experiment—Electron diffraction—Electron microscope (qualitative study only).

Molecular scattering of light :—Rayleigh scattering—Raman effect.

Mass and Energy :—Their equivalence—Einstein's equation—Nuclear fission—Chain reaction—Atomic energy—Uses.

A practical examination will be held to test the candidate's acquaintance with phenomena and his ability to show them, as well as his ability to make physical measurements. At the practical examination candidates must submit to the Examiner or Examiners their laboratory note-books duly certified by their Professors or lecturers as a bona-fide record of work done by the candidates.

LIST OF EXPERIMENTS FORMING THE COURSE IN PRACTICAL PHYSICS FOR THE THREE-YEAR DEGREE COURSE (PHYSICS MAJOR).

A.—General Physics.

1. Spherometer and Single Optical lever.
2. Balance—Sensibility and correction for buoyancy.
3. Specific gravities of liquids and solids (heavier and lighter than water—soluble and insoluble in water) using hydrostatic balance.
4. Specific gravity bottle—Specific gravities of liquids and solids (soluble and insoluble in water).
5. Nicholson's Hydrometer, Test-tube float, and common hydrometer.
6. Boyle's law—Fortin's barometer.
7. Parallelogram law of forces—Triangular law of forces Lami's Theorem and Tangent law—Verification and determination of mass.
8. Law of parallel forces—Verification and conditions of equilibrium. Weight on non-uniform bar, centre of gravity of irregular lamina.
9. Inclined plane—Mechanical advantage (1) when power acts parallel to the plane, (2) when power acts parallel to the base.
10. Compound pendulum—Bar pendulum—K and 'g' determination.
11. Kater's Pendulum—'g' by Bessel's formula and method of coincidence.
12. Young's modulus by stretching.
13. Young's modulus by uniform bending.
14. Young's modulus by non-uniform bending.
15. Rigidity by static torsion.
16. Rigidity by torsional oscillations.
17. q, n and σ by Searle's apparatus.
18. Moment of inertia—Torsional pendulum.

19. Moment of inertia—Comparison—Bifilar pendulum.
20. Surface tension—Capillary rise.
21. Surface tension by pull on a plate.
22. Surface tension by weight of drops—S.T. at water oil interface.
23. Surface tension of mercury, Quincke's drop.
24. Viscosity by flow of liquid in capillary tube and comparison of viscosities.

B.—Heat.

25. Co-efficient of linear expansion—Optic lever.
26. Co-efficient of expansion of liquid specific gravity bottle.
27. Co-efficient of increase of pressure of air at constant volume.
28. Co-efficient of expansion of air at constant pressure.
29. Specific heat of a liquid using a solid—Barton's correction.
30. Latent heat of fusion of ice.
31. Latent heat of steam.
32. Melting point, cooling curve, Boiling point of a liquid, J-tube.
33. Newton's Law of cooling—Verification—Specific heat of liquid by cooling.
34. Thermal conductivity—Searle's apparatus.
35. Thermal conductivity—Bad conductor—Lee's apparatus.
36. Mechanical equivalent of heat—Friction cone apparatus.

C.—Light.

37. Photometers—Bunsen's and Joly's.
38. Direct refraction—Determination of refractive indices of solids and liquids by parallax method and by microscope.
39. Refractive index by critical angle (1) Glass prism, (2) Air cell.
40. Focal length of concave and convex mirrors.
41. Focal length of convex and concave lenses—Auto collimation.
42. Refractive index of material of convex lens and concave lens.
43. Refractive index of a liquid—Liquid lens.
44. Magnifying powers of microscope and telescope.
45. Resolving power of a telescope.
46. Spectrometer—Refractive index ; critical angle.
47. Spectrometer—Refractive index of material—Minimum deviation.

48. Spectrometer—Refractive index of liquid—Hollow prism.
49. Spectrometer—Refractive index of a material of narrow angled prism.
50. Spectrometer—i-D, i-i' Curve—Stoke's method.
51. Spectrometer—Dispersive power of the material of a prism.
52. Spectrometer—Grating—Wave length of light—Normal incidence—Dispersive power.
53. Spectrometer—Wave length of light—Minimum deviation method.
54. Newton's rings by reflected light—Radius of curvature.
55. Wave length of light—Biprism—Optic bench.
56. Polarimeter—Rotation of plane of polarisation.
57. Solar spectrum—Fraunhofer lines.

D.—Sound.

58. Frequency by resonance column; end correction.
59. Volume resonator.
60. Frequency by falling plate.
61. Kundt's dust tube—determination of q of rod and Velocity of sound in a rod.
62. Sonometer—Verification of laws of transverse vibration.
63. Sonometer—Frequency of Fork.
64. Melde's experiment.

E.—Magnetism.

65. Deflection magnetometer—Comparison of magnetic moments.
66. Deflection magnetometer—Verification of inverse square law. Gauss method and pole strength—long magnet.
67. Vibration magnetometer—Polestrength—Inverse square law.
68. Determination of M and H.
69. Mirror magnetometer ; inverse square law verification.
70. Hysteresis by magnetometer method.

F.—Electricity.

71. Resistance by post office box—Specific resistance.
72. Resistance by Metre Bridge—Specific resistance.
73. Absolute Measurement of current by tangent galvanometer—calibration of ammeter.

74. Electro-chemical equivalent of copper—Copper Voltameter.
75. Field along the axis of a coil—deflection magnetometer.
76. Field along the axis of a coil—Vibration magnetometer.
77. Conductivity of an electrolyte.
78. E.M.F. by potentiometer.
79. Current by potentiometer—Ammeter Calibration.
80. Resistance by potentiometer.
81. Internal resistance of a cell by potentiometer.
82. Standardisation of potentiometer—Low range voltmeter calibration.
83. Potentiometer—Calibration of high range voltmeter.
84. Potentiometer—Rayleigh's form.
85. Carey Foster's method of comparing nearly equal resistances.
86. Temperature co-efficient of resistance.
87. Comparison of low resistances by direct deflection.
88. High resistance—Comparison and determination.
89. Resistance of a galvanometer by half deflection method.
90. Figure of merit of a galvanometer—Current and voltage sensitivity.
91. Mechanical equivalent of heat—Joule's law.
92. E.M.F. of Thermocouple by potentiometer.
93. E.M.F. of Thermocouple by direct deflection method.
94. Constant of a ballistic galvanometer—Hibbert's standard —condenser method—Quantity sensitivity.
95. Search coil ; pole strength of a magnet.
96. Comparison of Emfs. by condenser and ballistic galvanometer.
97. Internal resistance of a cell by ballistic galvanometer.
98. Absolute measurement of capacity.
99. Comparison of mutual inductances by ballistic galvanometer.
100. Absolute measurement of mutual inductance.
101. Earth inductor (1) Constant of a ballistic galvanometer. (2) Dip. (3) H.
102. Self inductance—Anderson's method.
103. Characteristics of a triode valve.

Books for Study.—

1. Nightingale : Higher Physics.
2. Loney : Elements of Dynamics, Statics and Hydrostatics.

3. P. R. Subramanian : Mechanics (Industrial School Press Trichi).
4. T. V. Venkatachary : Hydrostatics.
5. P. E. Subramania Iyer : Properties of matter (S. Visvanathan).
6. Mathur : Properties of matter (S. Chand & Co., Delhi).
7. N. Anantakrishnan, S. R. Govindarajan & S. Rajagopalan : A Text-book of Heat (S. Visvanathan).
8. Tyler F.: Intermediate Heat (Edward Arnold Co.).
9. Noakes : Heat (Macmillan & Co.).
10. Noakes : Light (Macmillan & Co.).
11. Sethi and Raizada : A Text-book of Optics (S. Chand & Co., Delhi).
12. K S. Mandalam Iyer and Narayanamoorthy : Text-book of Light (S. Visvanathan).
13. Winstanley : Sound (Longmans).
14. S. R. Govindarajan and T. Murugaiyan : Sound (Rochouse & Sons).
15. H. G. Mitchell : Electricity and Magnetism (Methuen).
16. Nelkon : Electricity and Magnetism (Arnold & Co.).
17. D. N. Vasudeva : Magnetism and Electricity (Chand & Co., Delhi).
18. Syed Yakub and J. P. Manickam : Atomic Physics (S. Visvanathan).
19. Fr. J. B. Rajam : Practical Physics (St. Joseph's College, Trichinopoly).
20. Sri K. S. Venkatesan : Practical Physics (Madura College, Madurai).

Books for Reference :

1. Analytical and Experimental Physics by Lemon and Ference University of Chicago Press.
2. Elementary Statics and Dynamics by Barnard.
3. Dynamics, Statics and Hydrostatics by Humphry.
4. A Second Course in General Physics : Mc. Kenzie (C.U.P.).
5. General Physics : Kronig.
6. Mechanics and Properties of matter : Nelkon (Arnold).
7. Mechanical Properties of matter : S.G. Starling (Macmillan).
8. Statics : Sastry.
9. Dynamics : S. Narayanan (Rochouse & Sons).

10. Heat for Junior students: Saha and Srivastava.
11. A Text-book of Heat: Allen and Maxwell (Macmillan).
12. A Text-book of Light: Barton (Longmans).
13. A Text-book of Sound: F. G. Mee (Heinlan & Co.).
14. A Text-book of Sound: Capstick (S. Chand & Co.).
15. Electricity and Magnetism: Noakes (Macmillan).
16. Advanced Electricity and Magnetism: Hutchinson.
17. A Second Course of Electricity: Mc. Kenzie (C.U.P.).
18. Advanced Text-book of Practical Physics: Wornosop and Flint (Methuen).
19. A Text-book of Practical Physics: Watson (Longmans).

Branch IV—CHEMISTRY.

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I. Theoretical Chemistry.

1. Atomic weights. Chemical formulae and stoichiometric equations. Determination of atomic weights. The classification of elements into metals, non-metals and metalloids. The contributions of Dobereiner, Newlands, Mendeleeff and Lothar Meyer in classifying elements. Radio activity and the laws of radioactive decay. The structure of the atom. Periodicity of the properties of the elements. Moseley's work on atomic numbers. Transmutation of elements. Isotopes. Tracer elements.

2. Properties of molecules in relation to structure: Dipole moments; refraction; molecular spectra; magnetic properties.

3. Attraction between molecules: van der Waals-London forces. Boiling points, latent heat of vaporisation, surface tension and parachor association, molecular compounds.

4. Acids and bases: Definition:—Lowry-Bronsted, G. N. Lewis; very weak acids and bases; strength of acids and bases; strong acids and bases; indicators.

5. Formation and stability of free radicals. Photochemical fission of a bond, thermal decomposition of metal alkyls, thermal fission of carbon—carbon bonds, other thermal fissions, chain reactions. Chlorination of hydrocarbons.

6. Tautomerism: The idea of tautomerism, keto-enol tautomerism, nitro-isonitroso tautomerism, amido-imino tautomerism, lactam-lactim tautomerism and quinone oximes.

7. Molecular rearrangements: Pinacol rearrangement (Whitmore mechanism), Hofmann and Curtius transformations, benzilic acid re-arrangement, Fries rearrangement, Claisen rearrangement, the diazonium transformation and benzidine rearrangement.

8. Aromatic substitution: Inductive effect, mesomeric effect, electromeric effect and tautomeric effect. Orientation of substituents in benzene. Theory of substitution in benzene: nucleophilic and electrophilic.

9. Stereochemistry : Elements of symmetry. Resolution of racemic forms. Racemisation. Walden Inversion. Asymmetric synthesis. Geometrical isomerism. Stereochemistry of aldoximes and ketoximes. Bayer's strain theory and its modifications. Mechanism of addition to double and triple bonds. Allenes and spirans. An elementary knowledge of the optical isomerism of other quadrivalent elements whose valences are directed tetrahedrally.

10. The Chemical bond: Historical. The covalent bond, ionic bond, transition from covalent to ionic bond, metallic bond, dative bond, hydrogen bond, 'Onium compounds,' double and triple bonds; conjugated systems; the application of resonance concept to systems like benzene, naphthalene, carbon dioxide, carbon monoxide, nitro and carboxyl groups, quinones, triphenyl methane dyes.

11. The solid state. Elements of crystal structure. X-ray study of a cubic crystal.

List of books in Chemsitry for reading and reference :

General Chemistry :—

Ehret—Smith's General Chemistry for Colleges (Longmans).

Pauling—College Chemistry (W. H. Freeman & Co.).

Pauling—Nature of the Chemical Bond (Ornell University).

Latimer & Hilderbrand—Principles of Chemistry and Reference Book of Inorganic Chemistry (Macmillan).

Sidgwick—Electronic Theory of Valency (Oxford).

Speakman—Modern Atomic Theory (Arnold).

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II. PHYSICAL CHEMISTRY.

N.B.—Experimental demonstrations are obligatory

1. Ideal gas laws: The laws of Boyle, Charles, Gay Lussac Dalton, Gaham Vapour densities : Experimental determinations by the methods of Regnault, Dumas, Hoffman and Victor Meyer. Avogadro's hypothesis. Molecular weights of gases and vapours. Limiting densities.

2. Kinetic theory of gases. The behaviour of ideal gases. The equation of state of ideal gases from kinetic theory. Mean molecular velocity and mean free path. Collisions between molecules of the same kind. Real gases. The equation of state of van der Waals.

3. The solution of gases in liquids and of solids in liquids. Henry's law. Determination of these solubilities. Solubility curves and their significance. Supersaturation.

4. Vapour pressures of solutions. Raoult's law. Measurements of vapour pressure differences. Determination of the molecular weights of a non-volatile solute by cryoscopic and ebullioscopic methods. Osmotic pressure and its relation to the vapour pressure of dilute solutions. Measurement of osmotic pressure. Isotonic solutions.

5. Electrical conductivity of aqueous solutions. Faraday's laws of electrolysis and their significance; use in determining equivalents. Ionic theory. Electrolytic dissociation and the Arrhenius concept. Equivalent and molecular conductivities. Mobility of ions. Kohlrausch's law. Transport numbers. Strong and weak electrolytes. Ostwald's dilution law. Interionic attraction. Electrode potentials and their applications. Hydrogen ion concentration ; its measurement by using indicators, conductivity, hydrogen electrode, glass electrode. Ion activity. Solubility products and its analytical applications. Hydrolysis. Buffer solutions. Dissolution of metals. Corrosion and passivity. Redox reactions. Redox potentials and redox indicators.

6. The First law of Thermodynamics. Internal energy and heat content. Hess's law. Heat of formation, solution, dilution, neutralisation and combustion.

7. Isothermal and adiabatic changes. Carnot's cycle. The Second law of Thermodynamics. Free energy. Clapeyron equation. Joule Thomson effect. Liquefaction of gases. Critical phenomena. van't Hoff isotherm and isochore.

8. The phase rule of Willard Gibbs. Applications to one component and two component systems like the following : Water, sulphur, steam distillation, mixture of benzene and toluene, constant boiling hydrochloric acid, ethyl alcohol-water system, dissociation of calcium carbonate. Partition co-efficient and its applications. Miscibility of liquid systems. Distillation of mixtures of two liquids. A study of binary alloy systems involving the formation of an eutectic, solid solution and compound. Salt hydrates.

9. Exothermic and endothermic reactions. Reversible reactions. The influence of temperature on reactions. The le Chatelier-Braun principle. Association and dissociation. The law of mass action: enunciation and application to systems like dinitrogen tetroxide, hydrogen iodide, ammonium chloride, phosphorus pentachloride and calcium carbonate.

10. Velocity of chemical change. Order and molecularity of reactions. The Arrhenius rate equation and the parameters. A study of the following reactions : the combination of hydrogen and iodine : the reaction between nitrogen monoxide and oxygen, the decomposition of dinitrogen pentoxide ; the hydrogen-chlorine reaction (thermal and photochemical) ; the hydrolysis of carboxylic esters. Neutral salt effects. Homogeneous and heterogeneous reactions. Zero order reactions. Absorption at surfaces.

11. The colloidal state and its characteristics. General methods of preparing lyophobic and lyophillic colloids. Oil-in-water and water-in-oil emulsions. Sols and gels. Peptisation and protective action. Gold number. Electrophoresis. Brownian movement and Avogadro number. Adsorption indicators. Permeability of synthetic membranes. A qualitative picture of the Donnan membrane equilibrium.

Physical Chemistry :—

Prutton & Maron—Fundamental Principles of Physical Chemistry (Macmillan).

Macdougall—Physical Chemistry (Macmillan).

Glasstone—Elementary Physical Chemistry (Van Nonstrand).

Daniels and Albery—Physical Chemistry (Wiley).

Eastman and Rollefson—Physical Chemistry (McGraw Hill).

W. J. Moore—Text-book of Physical Chemistry (Longmans).

Getman and Daniels—Physical Chemistry (Wiley).

A. J. Mee—Text-book of Physical Chemistry (Heinemann).

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III. INORGANIC CHEMISTRY.

N.B.—Experimental demonstrations are obligatory.

1. *Hydrogen.*—Preparation, properties, manufacture and uses, Heavy hydrogen.

2. *Oxygen.*—Preparation, manufacture, properties and uses. Oxides of metals and their thermal stability. Acidic, basic and amphoteric oxides. Higher oxides.

3. *Water.*—Hard and soft waters. Methods of purification and softening. Composition of water by weight and by volume. Efflorescence and deliquescence. Action of water (liquid and vapour) on metals and non-metals. Heavy water.

4. *Ozone and Hydrogen peroxide.*—Preparation, manufacture, properties and uses. Composition and relationships with oxygen and water respectively. Structural formulae of ozone and hydrogen peroxide. Oxidation and reduction.

5. The halogens and their compounds.

6. The composition of the atmosphere. Nitrogen, its hydrides, halides, oxyhalides, oxides and oxyacids and their salts. Hydroxylamine. Fixation of atmospheric nitrogen.

7. Sulphur. Allotropic forms. Hydrides, halides, oxyhalides, oxides, oxyacids and their salts. Manufacture and uses of sulphuric acid. Selenium. Selenious acid.

8. Phosphorus. Allotropic forms. Hydrides, halides, oxyhalides, oxides, oxyacids and their salts. Superphosphates.

9. Arsenic, antimony and bismuth. The elements, their hydrides, oxides, chlorides and sulphides. Arsenites and arsenates. Antimonates of the alkali metals. Sodium bismuthate.

10. Carbon. Carbon suboxide, carbon monoxide and carbon dioxide. Carbonates and bicarbonates and percarbonates. Carbonyl chloride, carbon disulphide, cyanogen, hydrogen cyanide, cyanides and cyanide complexes. Metal carbonyls.

11. Silicon, silicon dioxide, silicic acid, mono and di silanes. Alkali silicates. Carborundum. Silicon tetrachloride and silicon tetrafluoride. Boron, diborane, boron trifluoride, borontrioxide and boric acids. Borates of sodium. Boron nitride.

12. The general occurrence of metals and principles of obtaining the metals from their oxide and sulphide ores. A comparative study of the following methods :—

Lithium, sodium, potassium ;
Copper, silver, gold ;
Magnesium, calcium, strontium, barium, radium ;
Zinc, cadimium, mercury ;
Aluminium, lanthanum, actinium ;
Titanium, thorium ;
Tin, lead ;
Vanadium ;
Chromium, molybdenum, tungsten (wolfram), uranium ;
Manganese ;
Iron, cobalt, nickel ;
Platinum.

Inorganic Chemistry :—

Moeler—Inorganic Chemistry (Wiley).

Barnett and Wilson—Inorganic Chemistry (Longmans).

Palmer—Experimental Inorganic Chemistry (Cambridge).

Ephraim—Inorganic Chemistry (Gurney and Jackson).

Emeleus and Anderson—Inorganic Chemistry (Routledge).

Philbrick and Holmayard—A Text-book of Theoretical and Inorg. Chemistry (Dent).

Mellor revised by Parkes—Modern Inorganic Chemistry (Longmans).

Partington—A College course of Chemistry (Macmillan).

Sidgwick—The chemical elements and their compounds (Oxford)

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IV. ORGANIC CHEMISTRY.

N.B.—Experimental demonstrations are obligatory.

1. *The aliphatic hydrocarbons.*—Primary, secondary, tertiary and quaternary carbon atoms. Nomenclature. Preparation of alkanes, Substitution and oxidation reactions.

2. *Olefines and acetylenes.*—Preparation, oxidation, reduction, addition (Markovnikov's rule), isomerisation and polymerisation.

3. *Halides.*—Preparation, addition products with ammonia, amines, metals; condensation, hydrolysis, reduction and double decomposition; vinyl chloride, allyl chloride and allyl bromide, chloroprene.

4. *Polyhalo alkanes.*—Preparation of chloroform, carbon tetrachloride and iodoform. Specific reaction.

5. *Alcohols.*—Preparation of mono-, di-, and tri-hydroxy alcoholy Replacement, dehydration and oxidation. Allyl alcohol. Production of methyl and ethyl alcohols.

6. *Ethers.*—Preparation, single and double cleavages at the oxygen. linkage, substitution.

7. *Halohydrins and oxides.*—Preparation. Polyfunctional nature of the halohydrins. Additive reaction of oxides.

8. *Aldehydes and ketones.*—Preparation, oxidation, reduction, addition, substitution of oxygen and of hydrogen, condensation, polymerisation. Preparation and properties of acrolein, crotonaldehyde, mesityl oxide and phorone.

9. *Saturated monocarboxylic acids.*—Preparation, reactions of the carboxyl function, dehydrogenation and decarboxylation.

10. *Unsaturated monocarboxylic acids.*—Preparation from alcohols, aldehydes, halogen substituted acids, hydroxy and amino acids. Reactions of the carboxyl function, oxidation, reduction, addition and oxirane ring formation. Shift of the double bond.

11. *Halogen and hydroxy substituted acids.*—Halogenation at the alpha carbon atom, substitution, dehalogenation. Preparation of alpha hydroxyl acids by cyanhydrin reaction. The influence of the position of the hydroxyl group on the behaviour of hydroxy acids. Lactic and tartaric acids. Malic and citric acids.

12. *Oxo substituted acids.*—Glyoxylic, formyl acetic, pyruvic acetoacetic and laevulinic acids. General methods of synthesising aldehydic and ketonic acids and special synthesis of acetoacetic ester by Claisen reaction. Special reactions of acetoacetic ester.

13. *Malonic and other dicarboxylic acids.*—Preparation and special reactions. Comparison with acetoacetic ester, alpha formyl and cyanacetic ester and acetone dicarboxylic ester. Oxalic, succinic, glutaric and adipic acids. Synthetic uses of malonic ester. Pumaric and maleic acids.

14. *Acid derrivatives.*—Anhydrides, acid chlorides, esters and amides.

15. *Aliphatic sulphur compounds.*—Preparation of thio-alcohols. Reaction of thio-alcohols with metals, metallic oxides, aldehydes, ketones, organic acids and acyl halides. Oxidation. Mustard gas.

16. *Aliphatic nitrogen derivatives.*—Preparation and properties of nitroalkanes. Preparation and properties of urea. Preparation and properties of alkylamines. Ethanolamine. Preparation and properties of alkyl cyanides and isocyanides.

17. Grignard reagents.

18. *Unsaturated hydrocarbons.*—Isolated double bonds, cumulated double bonds, conjugated double bonds. Thiele's theory of partial valency.

19. *Dialdehydes and diketones.*—Preparation and properties of glyoxal, methyl glyoxal, diacetyl, succindialdehyde, acetylacetone and acetonylacetone.

20. *Hydroxyaldehydes and hydroxyketones.*—Preparation and properties of glycolaldehyde, aldol and diacetone alcohol.

21. *Diazo compounds.*—Preparation and reactions of diazomethane and diazoacetic ester.

22. *Carbohydrates.*—Nomenclature. Aldotriose, aldotetrose, aldopentose. Glucose and fructose. Reactions of glucose and fructose with phenyl hydrazine. Method of ascending and descending the sugar series. Interconversion of aldose and ketose. Constitution of glucose and fructose.

23. *Alicyclic compounds.*—General methods of preparation and general properties of cycloparaffins.

24. *Simple Aromatic compounds.*—Structure of benzene. Preparation of homologues. Properties. Synthesis of aromatic compounds from aliphatic compounds.

25. *Aromatic halogen compounds.*—Preparation and properties of nuclear and side chain substitution products. Polyvalent iodine compounds.

26. *Aromatic nitro compounds.*—Methods of nitration. Properties of aromatic nitro compounds and nitroso compounds. Reduction products of nitro compounds. Phenyl hydroxylamine.

27. *Aromatic amino compounds.*—General methods of preparation of primary amines. Aniline, acetanilide, chloro-, bromo-, and nitro anilines. N-alkyl anilines. Hofmann rearrangement and toluidines. Diphenylamine, benzylamine and phenylene diamines.

28. *Diazonium salts.*—Diazotisation. Replacement reactions. Reactions in which nitrogen is retained. Structure of diazonium salts. Phenylhydrazine. Diazoamino and aminozo compounds. Azoxy, azo, and hydrazo benzenes. Benzidine. Hydroxy azo compounds. Simple azo dyes.

29. *Sulphonic acids.*—Methods of sulphonation. Benzene sulphonic acid. Sulphanilic acid. Sulphanilamide. Saccharin.

30. *Phenols.*—Phenol, Cresols, halogenated phenols, nitrophenols, aminophenols, nitrosophenol, phenolsulphonic acids, catechol, resorcinol, quinol, pyrogallol, hydroxyquinol and phloro-glucinol. Anisole, Guiacol.

31. *Alcohols, aldehydes, ketones and quinones.*—Benzyl alcohol, Betaphenyl ethyl alcohol. General methods of preparing aromatic aldehydes. Benzaldehyde and its condensation reactions. Nitration and halogenation of benzaldehyde. General methods of preparing phenolic aldehydes. Salicylaldehyde. Acetophenone. Phenacyl chloride. Houben-Hoesch synthesis. Benzo-phenone. Benzoquinones.

32. *Aromatic acids.*—General methods of preparation. Benzoic acid, benzoyl chloride, benzamide, nitrobenzoic acids, anthranilic acid, salicylic acid, phenylacetic acid, mandelic acid, cinnamic acid, phthalic acid, phthalic anhydride, phthalimide, phthaloyl chloride, iso-and terephthalic acids. Esters.

33. *Polynuclear hydrocarbons and their derivatives.*—Diphenyl, diphenylmethane, triphenylmethane. Triphenylmethyl chloride. Stilbene. Benzoin, hydrobenzoin and benzil. Phthaleins.

Structure of naphthalene. Oxidation and reduction of naphthalene. Nitronaphthalenes. Aminonaphthalenes and their reduction. Naphthalene sulphonic acids. Naphthols and their reduction. Naphthaquinones.

Structure of anthracene, anthraquinone, alizarin.

Structure of phenanthrene. Phenanthraquinone.

34. *Amino acids and polypeptides.*—Glycine, alanine, nor-leucinek, leucine, isoleucine, tryptophane. Polypeptides.

35. *Heterocyclic compounds.*—Pyrrol, pyridine, quinoline, isoquinoline.

36. *Alkaloids.*—Coniine, piperine, nicotine.

37. *Terpenes.*—Geraniol, citral, dipentene, methol.

Organic Chemistry:—(Books recommended for reference):

Dyson—Manual of Organic Chemistry (Longmans).

Fieser and Fieser—Organic Chemistry (Asia Publishing House).

Branch and Calvin—Theory of Organic Chemistry (Prentic Hall).

Hermans—Theoretical Organic Chemistry (Elsevier).

Kipping and Kipping—Organic Chemistry (Chambers).

Schmidt—Organic Chemistry (Gurney).

Hickinbottom—Reactions of Organic Compounds (Longmans).

Noeller—Chemistry of Organic Compounds (Saunders).

Paul Karrer—Organic Chemistry (Elsevier).

Sidgwick—Organic Chemistry of Nitrogen (Oxford).

Finar—Organic Chemistry, Vols. I and II (Longmans).

Turne and Harris—Organic Chemistry (Longmans).

Practical:—

Kolthoff and Sandell—Text-book of Quantitative of Analysis (Macmillan).

Deihl and Smith—Quantitative Analysis (Wiley).

Arthur and Smith—Semimicro Qualitative Analysis (McGraw Hill)

Vogel—Qualitative Analysis (Longmans).

Vogel—Quantitative Analysis (Longmans).

Vogel—Organic Preparation (Longmans).

Middleton—Organic Analysis (Cambridge).

Wild—Estimation of Organic Compounds (Cambridge).

Wild—Characterisation of Organic Compounds (Cambridge).

Daniels Mathews and Wilson—Practical Physical Chemistry (McGraw Hill).

Palmer—Practical Physical Chemistry (Cambridge).

Caven—Qualitative Analysis (Blackie).

Clark—Qualitative Organic Analysis (Arnold).

Findlay—Practical Physical Chemistry (Longmans).

Syllabus in Chemistry—Practical

1. Verification of the law of multiple proportions.
2. Verification of the law of definite proportions.
3. Equivalent weight by the conversion of a metal to its chloride.
4. Equivalent weight by displacement of one metal by another.
5. Equivalent weight by conversion of one compound to another.
6. Solubility of a solid at different temperatures. Solubility curve.
7. Solubility of a gas in water. Estimation of the major components of air.
8. Separation of liquids by fractional distillation.
9. Purification of a solid by fractional crystallisation.

10. Acidimetry and alkalimetry :
    (*a*) Strong acid and strong base system.
    (*b*) Strong base weak acid system.
    (*c*) Strong acid weak base system.
    (*d*) Solubility of acidic and basic substances.
    (*e*) Determination of sodium carbonate in washing soda.
    (*f*) Determination of the strength of glacial acetic acid.
    (*g*) Analysis of sodium hydroxide flakes.
    (*h*) Hardness of water.
    (*i*) The Kjeldahl method of nitrogen estimation.

11. Oxidations involving potassium permanganate :
    (*a*) Estimation of ferrous iron.
    (*b*) Estimation of oxalic acid and oxalates.
    (*c*) Estimation of hydrogen peroxide.
    (*d*) Determination of ferrous and ferric iron in a mixture.
    (*e*) Determination of calcium.
    (*f*) Determination of nitrite.
    (*g*) Determination of manganese dioxide in pyrolusite.
    (*h*) Estimation of nitrite and chlorate using Bunsen valve.

12. Oxidations with potassium dichromate :
    (*a*) Determination of ferric iron.
    (*b*) Determination of chromium in a chromium salt.

13. Iodimetry :

(a) Estimation of copper, arsenious oxide and hypochlorite.
(b) Estimation of tin.

14. Precipitation and complex formation :
Determination of chlorides in neutral and acid solutions.

15. Gravimetric estimations :

(a) Iron as ferric oxide using cupferron or pyridine.
(b) Magnesium as pyrophosphate or oxinate.
(c) Nickel as dimethylglyoxine complex.
(d) Lead as chromate.
(e) Copper as cuprous thiocyanate.
(f) Complete analysis of hydrated barium chloride.
(g) Estimation of calcium as oxalate and as carbonate.
(h) Estimation of lead as sulphate.

16. Qualitative analysis :

(a) Reactions of the following radicals :—

Silver, mercury, lead, copper, bismuth, cadmium, antimony, tin, iron, aluminium, chromium, zinc, manganese, cobalt, nickel, calcium, strontium, barium, magnesium, potassium, sodium, ammonium, sulphide, sulphite, carbonate, nitrite, thiosulphate, sulphate, nitrate, fluoride, chloride, bromide, iodide, acetate, oxalate, tartrate, arsenite, arsenate, phosphate, chromate, silicate, borate.

(b) Analysis of a mixture of four radicals including mixtures which involve the elimination of interfering radicals.

17. Organic Chemistry :

(a) Distillation under atmospheric pressure and under reduced pressure. Steam distillation.

(b) Preparations involving : Oxidation, reduction, esterification, hydrolysis, nitration, sulphonation, halogenation, diazotisation.

(c) Characterisation of organic compounds by their functional groups and confirmation by preparation of derivatives.

18. Physical Chemistry :

(a) Determination of molecular weights by cryoscopic, ebullioscopic and steam distillation methods.

(b) Transition temperature by thermometric method.

(*c*) Partition co-efficient involving:—

(*i*) Simple systems, (ii) systems involving the formation of complex and (iii) systems involving association or dissociation.

(*d*) Determination of heats of solution and heats of neutralisation.

(*e*) Determination of hydrogen ion concentration by use of indicators.

(*f*) Study of the kinetics of simple reactions:
Pottassium iodide and potassium persulphate, *or*
Potassium iodide and potassium bromate.

Branch V—BOTANY.

[20 (i to ix)]

1. A general account of the nature of plant viruses.

A general account of the various groups of Bacteria; a brief study of their morphology and physiology.

2. The main points of structure development, life history and taxonomic relations of the following groups in general and the genera in particular:—

Thallophyta:

Algae: Chlorophyceae:

Chlamydomonas, Pandorina, Eudorina, Pleodorina, Volvox, Ulothrix, Enteromorpha, Cladophora, Coleochaete, Oedogonium, Spirogyra, Desmids, Caulerpa, Vaucheria.

Diatoms.

Botrydium.

Chara and Nitella.

Cyanophyceae:
Gleocapsa, Oscillatoria, Nostoc, Rivularia.

Phaeophyceae:
Ectocarpus, Sargassum, Dicyota.

Rhodophyceae:
Batrachospermum, Polysiphonia, Gracilaria.

Fungi:

Myxomycetes:
Plasmodiophora.

Phycomycetes:

Synchytrium, Saproleognia, Pythium, Peronospora, Albugo.

Ascomycetes:

Saccharomyces, Penicillium, Pyronema, Peziza, Claviceps, Xylaria.

Basidiomycetes:

Exobasidium, Ustilago, Puccinia, Agaricus, Lycoperdon, Polyporus.

Fungi Imperfecti:

Fusarium, Piricularia, Colletotrichum.

Lichnes:

Usnea.

Bryophyta:

Riccia, Marchantia, Anthoceros, Porella, Funaria.

Pteridophyta:

Psilotum, Lycopodium, Selaginella, Isoetes, Equisteum, Ophioglossum, Lastrea, Marsilea.

Gymnospermae:

Cycas, Pinus, Gnetum.

3. The external Morphology of Flowering Plants.

Principles of classification with reference to the systems of Bentham and Hooker and of Engler and Prantl.

The morphology and systematics of the following families of Angiosperms.

Ranunculaceae, Magnoliaceae, Nymphaeaceae, Cruciferae, Malvaceae, Sterculiaceae, Tiliaceae, Geraniaceae, Balsaminaceae, Oxalidaceae, Tropaeolaceae, Rutaceae, Meliaceae, Anacardiaceae, Papilionaceae, Caesalpiniaceae, Mimosae, Rosaceae, Myrtaceae, Cucurbitaceae, Umbelliferae, Rubiaceae, Compositae, Apocynaceae, Asclepiadaceae, Convolvulaceae, Solanaceae, Scrophulariaceae, Acanthaceae, Labiatae, Verbenaceae, Euphorbiaceae, Amarantaceae, Ulmaceae, Urticaceae, Moraceae, Cannabinaceae, Orchidaceae, Liliaceae, Palamae, Araceae, Musaceae, Zingiberaceae, Cannaceae, Marantaceae, Cyperaceae, Gramineae.

4. Embryology of Angiosperms.

   Anther—Lilium.
   Ovule and Embryosac—Polygonum.
   Embryo—Ammannia.

5. Anatomy:

   The structure and modes of division of the cell; Mitosis, Amitosis, Meiosis.

   The nature and mode of origin of plastids, cell sap and other cell contents.

   The Physical and chemical properties of protoplasm. The cell wall; its composition. Modification of the cell-wall. Meristems: Location—Kinds of Properties. Primary and secondary tissues and their distribution in the plant body. Root stem transition and different types of anomalous secondary growth.

6. Physiology:

   (*a*) The chemical composition of the plant.

   Material of plant food and their sources.

   Absorption of water; Root-pressure; Absorption of ions.

   Sand-culture experiments with special reference to the use of inorganic nutrient salts in plant growth.

   (*b*) Soil microflora with reference to nitrogen fixation.

   Maintenance of soil fertility in cultivated soil-rotation of crops.

   (*c*) Transpiration: Laws of diffusion; Movements of stomata-wilting and its significance; Movement of water solutes and gases; Cohesion theory.

   (*d*) Assimilation of Carbon: External and internal factors.

   Law of limiting factors; Liebig's law of minimum. Simple theories connected with the mechanism of photosynthesis.

   (*e*) Assimilation of Nitrogen: Carbon-nitrogen ratio and its significance. Special methods of obtaining nitrogen. Translocation of Assimilated Products.
   Enzymes and their action.

   (*f*) Respiration: Energy relations of the plant. Factors affecting respiration. Aerobic and anaerobic respiration and their relationships. Respiratory quotient.

   (*g*) Growth: Movement and irritability in plants.

7. *Ecology*:

(*a*) Factors of plant habitat—soil water—soil air.

(*b*) Units of vegetation. Plant succession.
Migration and Ecesis. Types of vegetation:—
Mangrove, coastal, scrub and evergreen.

(*c*) Characteristic features of Hydrophytes (submerged, floating and immersed types). Mesophytes with reference to stomatal frequency. Xerophytes (types of xeric environment.)

Physical and physiological drought.

8. *Heredity and Evolution*:

(*a*) A general introdution to plant life through the ages.

(*b*) Mendelism with special reference to mono-and di-hybrid ratios.

Chromosome theory of heredity.

(*c*) Mutations and the factors that induce them. Origin of species and theories of evolution.

(*d*) Modern methods of plant-breeding.
Improvements of crops.

Plant Pathology.

9. Tobacco mosaic—Citrus canker—Potato blight and Tomato manganese deficiency.

Practical work.

A. An introduction to culture technique of micro-organisms and to micro-technique as a demonstration.

B. Each student is expected to have done the following:—

(*a*) Preparations illustrating the form and structure of any plant of the groups or families mentioned in the syllabus and their description with sketches sufficient for their identification.

(*b*) Preparations of permanent slides with double staining.

(*c*) Dissections under the simple microscope of the floral parts of Phanerogams; making sketches of the parts dissected; drawing the floral diagram and giving reasons for referring them to their families.

(*d*) Descriptions in technical terms of plants belonging to the families of Phanerogams specified in the syllabus.

(*e*) Field work under tuition for at least five days each year.

(*f*) The following experiments in plant physiology to be made by the students:—

Osmosis—Permeability.

Root Pressure—Respiration (Anaerobic and aerobic).

Photosynthesis (2 experiments).

Transpiration (2 experiments).

Nutrition (water culture experiments).

Tropisms (3 experiments).

Growth (2 experiments).

Demonstration of the use of synthetic hormones in the growth of plants.

At the practical examination candidates are required to submit their laboratory note-books, a dozen microscopic preparations in permanent mounts, a collection of about one hundred plants with relevant field notes.

Note: Candidates are expected to comment on the experiments set up by the examiners.

Books for Study:—

1. Text-book of Botany for India, Pakistan and Ceylon by Lowson, Howarth and Warner.
2. Plant Physiology by O. Raber
3. Introduction to Systematic Botany by A. W. Haupt.
4. Cryptogamic Botany by G. M. Smith (Vols. I and II)
5. Economic Botany by A. F. Hill.
6. Plant Physiology by Maximov.
7. Introduction to Plant Anatomy by Eames.
8. Plant Ecology by Weaver and Clements.
9. Genetics by Walter.
10. Structural Botany by Scott (Vols. I and II)
11. Elements of Plant Pathology by I. E. Melhus and G. C. Kent.

12. Flora of Madras by Gamble.
13. Fungi and Plants Diseases by B. B. Mundkur.
14. Classification of Flowering plants by Rendle.
15. College Botany by Fuller and Tippo.
16. Taxonomy of Vascular Plants by Lawrence.
17. Theoretical Botany by McLean and Cook.

Branch VI—ZOOLOGY

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Paper I—Invertebrata :

A general survey of the invertebrate phyla (except the groups Mesozoa, Entoprecta, Bryozoa (Ectoprocta), Priapuloidea Chaetognatha, Rotifora, Gastrotricha, Kinorhynacha, Nematomorpha); characters of the phyla and their diagnestic features; classes and the main orders, their salient features and common examples (South Indian examples as far as possible development in Invertebrate (eggs, fertilization, cleavage gastrulation, larvae and their metamorphosis); evolutionary interrelationships of the Invertebrate phyla in broad outlines. The human parasites, their life histories and the diseases they cause shall be included in the treatment.

Paper II—Chordata :

A survey of the Prochordata and the classes and orders of the Vertibrata; a comparative study of the vertebrate systems from the evolutionary point of view; a survey of the vertebrate fauna of South India.

Paper III—Cytology, Genetics and General, Embryology :—

Elements of Cytology :

Cell structure and functions of parts of the cell; cell division with emphasis on chromosomes and their behaviour (mitosis and meiosis).

Principles of Genetics :

The general principles derived from experimentation with plant and animals (chromosomes, genes, Mendel's laws, linkage, chromosome maps, non-disjunction, sex-determination, sex-linkgation; and introduction animal breeding.

Embryology :

A survey of th principles of animal embryology based on vertibrate and invertebrate forms and an outline study of the origin as development of the organ systems with special reference to Amphiox rog, chick and pig. The fundamentals of experimental embryology.

Paper IV—Physiology, Ecology and Evolution :

Principles of Physiology :

A comparative study of the vital functions of animals indicated below :

1. Feeding and nutrition (a general knowledge of enzymes and their role will be expected).
2. Respiration: respiratory media, exchange and transport of grases, role of respiratory pigments, anaerobiosis.
3. Circulation: properties of heart muscles, composition and the functions of blood, blood groups, mechanics of circulation.
4. Excretion: elements of the physiology of excretion.
5. Neuromcter system; nervours control of muscles, elements of the chemistry of muscular contraction; nerve centres and pathways; nerve impulses; re-flexes; nerve endings (sensory and motor); functions of the autonomic system; chemical co-ordination.
6. Animal behaviour: an outline comparative physiology of the sensory and the nervous systems in relation to animal behaviour.
7. Practical demonstration of :—
   (*a*) muscle nerve preparation to show the muscle twitch.
   (*b*) heart-beat; recording of the heart-beat.
   (*c*) demonstration of reflexes.

Principles of Ecology:

The relation of animals to the facts of their environments; animal populations and animal communities, their formation and their interrelationships. A study of invertebrate life in a local pond, tank or river.

Evolution:

A study of the evidence and the theories relation to evolutions; modes of speciation.

Practical.

The following animal forms are to be studied in regard to the structure, functions and habits. Evolutionary aspects are to be stressed.

Amoeba, Paramecium, Vorticilla, Euglena, Hydra, Obelia, Physalia, Porpita, Aurelia, Sea-anemone, Corals, Ctenophores, like pleurobrachia, Parasitic worms, Nereis, Earthworm, Leech, Streptocephalus, Prawn, Crab, Hippa, Centipede, Millepede, Scorpion, Spider, Cockroach, Honey Bee, Mosquito, Termite, Fresh water Mussel, Pila, Sepia, Star-fish, Sea-urchin, Sea-cucumber, Amphioxus, Shark, Mullet, Frog, Calotes, Pigeon and Rat.

Dissections and preparations will be required for the following:

Earthworm, Leech, Cockroach, Prawn, Fresh water mussel, Pila, Shark, Frog, Calotes, Pigeon and Rat. (Dissection of nerves will not be required in the case of Fresh water mussel, Calotes and Pigeon.)

Embryology.—Embryology of amphioxus frog, chick and pig will be studied as far as possible from living materials and microscopic preparations.

Physiology.—A practical study of Vertenate physiology will be made from a few simple physiological experiments on frog.

Field collection of animal forms and their identification will be expected.

Branch VII—GEOLOGY

[22 (i to v)]

(1) *Physiography*:

A course of lectures on the following:—

The earth as a planet, its general relations to other members of the solar system, hypotheses as to the origin of the earth; form, size and density of the earth; its movements and their effects.

The atmosphere—Its composition, height, density, pressure, temperature, moisture and movements; weather, refraction, twilight and aurora-borealis.

The Hydrosphere—Its composition, extent and distribution, depth, temperature and movements.

The Lithosphere—The Chief constituents of the earth's crust, the general characters and mode of occurrence of geneous and sedimentary rocks. Condition of the interior of the earth.

Agents of Geological Change—The hypogene and epigene agents of geological change, manner and results of their action, especially as influencing earth-sculpture; the destruction, construction and gradual evolution of the crust of the earth and of its surface features.

Fossils, the main conditions favourable for their formation and preservation and their value as interpreters of the past history of the earth.

Climates—Their causes and distribution; glacial epochs.

Simple facts about the geographical and geological distribution of the chief types of plant and animal life. Antiquity of man. Views as to the age of the earth's crust.

Candidates are required to examine and draw sketche of specimens and preparations relating to the development of amphioxus, Frog, Chick and Pig.

(2) *Mineralogy*:

Crystallograpy:

Elements of Plane Trigonometry:—

Measurement of angles; Trigonometrical function and their relations to one another. Trigonometrical ratios of the angles 0, 30, 45, 60 and 90 degrees.

Use of Logarithms:

Symmetry; lines, planes and axes of symmetry, laws of Crystallography; the common holohedral, hemihedral and hemimorphic crystal forms and combinations under each of the six crystal systems; twenty-two types of crystal symmetry as follows.

Cubic system:

Normal Pyritohedral, Tetrahedral and Plagiohedral Classes.

Tetrogonal system.—Normal, Tri-pyramidal, Pyramidal Hemimorphic, Sphenoidal and Trapezohedral Classes.

Hexagonal system.—Normal, Hemimorphic, Tri--Pyramidal, Pyramidal, Hemimorphic, Trapezohedral, Rhombohedral, Rhombohedral Hemimorphic, Tri-Rhombohedral and Trapezohedral Classes.

Orthohombic system.—Normal, Hemimorphic and Sphenoidal Classes.

Monoclinic.—Normal Class.

Triclinic.—Normal Class.

The more important types of twins and twinning; grouping and irregularities of crystals, parting planes, percussion figures, etched figures ; zonal characters ; drawing of the more important crystal forms ; systems of crystal notation, use of the contact and the reflecting Goniometer.

Physical Mineralogy :

Colour, Streak, Lustre, cleavage, parting, fracture, hardness and specific gravity of Minerals.

Megascopic and Microscopic characters of :

Quartz, Orthoclase, Microcline, Plagioclases, Hypersthene, Augite, Aegerite, Hornblende, Glaucophane, Actinolite, Muscovite, Biotite, Olivine, Leucite, Nepheline, Nosean, Magnetite, Zircon, Garnet, Topaz, Apatite, Tourmaline, Sphene, Chlorite, Epidote, Calcite, Andalusite, Sillimanite and Cordierite.

Chemical Mineralogy :

General Principles of chemistry as applied to Minerals : Atom, molecule, atomic weight, symbol, formula, combining weight, molecular weight, valency, chemical reaction, radicals, chemical compound, acids, bases, salts, normal acid and basic salts.

Empirical and molecular formula.

Isomorphism, dimorphism, isodimorphism, pseudomorphism and paramorphism.

Optical Mineralogy :

General Principles of Optics.—Light as wave motion ; Laws of reflection and refraction, R.I. under the microscope and Beeke Test.

Double refraction in calcite, polarisation by reflection, Refraction and absorption. Construction of Nicol Prism. Isotropic, anisotropic, uniaxial and biaxial crystals and their properties, Interference.

Application of the colour chart to the study of minerals. Construction and use of quartz wedge, sensitive tint and mica plate and a simple petrological microscope. Description and Classification of the important rock-forming minerals.

Economic Mineralogy :

Procss of mineral formation, Lindgren's classification of mineral deposits ; oxidation and supergene enrichment. Occurrence and distribution in India, and utilization of the ores of gold, copper, tin, aluminium, iron, manganese, chromium, magnesium, lead, silver, zinc and sirconium, Non-Metallic Minerals—Coal, petroleum, clay, feldspars, gypsum, asbestos, mica, talc, corundum, emery, garnet, phosphates, precious and semiprecious stones.

(3) *Petrology :*

The classification and distribution of rocks : Their composition, structure, texture, origin and mode of occurrence of the more important types and their metamorphic and altered forms.

Crystallisation of binary magmas with (1) simple eutectic, (2) with incongruent melting point and (3) in solid solutions.

Contact and regional meamorphism.

The Macroscopic and microscopic examination of rocks (for list see under practical).

Principles of Mechanical separation of rock and mineral constituents.

(4) *Structural and Field Geology :*

Order of superposition ; Conformable and unconformable beds, overlap, lithology and fossil correlation ; facies ; division of rocks into groups systems, etc., and geological time into era epochs, etc.

Dip, strike and outcrop ; variation in outcrops with reference to dip of bed and slope of valleys ; types of—Unconformity, folds and faults ; inlier and outlier.

Compass—Clinometer and its uses.

(5) *Stratigraphy and Palaeontology :*

The chief petrological and palaeontological characters of the main geological divisions and the probable physical conditions under which they were formed. Geology of India.

The distribution of land and sea in India through ages :—Fossils, their nature and preservation. The main groups of vegetable and animal life and their distribution in time.

The characters, classification and distribution of the more important types of fossils especially Indian ; identification and sketching of fossils ; causes for the imperfections of the geological record; the general succession of life as revealed

thereby and the general evidence furnished in support of evolution ; principles of correlation ; homo-taxis.

1. Zoological characters and chief divisions of Protozoa—Fossils—Textulaira, fusulina and nummulites.

2. Zoological characters of the Porifera. Canal system of the sponges—Ventriculites.

3. General characters of the Graptolites—Monograptus, diplograptus.

4. General characters and divisions of the Coelenterata-corals—Cyathophyllum, zaphrentis, calceola, thecosmilia, favosites, halysites, lithostrotion.

5. General characters of Echinodermata-echinoderms-cidaris, micraster, holaster, encrinus and pentremites.

6. General characters of Brachiopoda and brachiopod shell, Fossils-lingula, productus, pentamerus, spirifer, rhynchonella and terebratula.

7. General characters of the Lamellibranchiata and lamelli branchshell—Fossils—Area, inoceramus, pectens, ostrea, gryphaea, alectryonia, pectunculus, hippurites, spondylus, unio, cardita and trigonia.

8. General characters of the Gasteropods and gasteropod shell Fossils—Bellerophon, natica, turritella, cerithium, murex, fusus, conus, voluta and physa.

9. General characters of the Cephalopods, Nautiloidea and ammonoidea—Fossils—Belemnites, nautilus, goniatites, orthoceras, ceratites, scholoenbachia.

10. General characters of the Trilobita—Fossils—Calymene, paradoxides, phacops, trinucleus.

11. *Plant fossils :*

Pteridosperms.—Glossopteris, Gangamopteris, Vertebraria and Thinn feldia.

Cordaites.—Noeggerthiopsis and Dadoxylon.

Equisitales.—Schizoneura, Phyllotheca and Equisites.

Filicales.—Alethopteris and Cladophlebis.

Sphenophyllales.—Sphenophyllum.

Cycadophyta.—Taeniopteris, Ptilophyllum, Otozomites and Dictyozomites.

Coniferales.—Buriadia (Voltzia) and Elatocladus.

Algae.—Dissocladella and Acicularia.

Angiosperms.—Azolla, Nipadites and Palmoxylon.

Lycopodiales.—Lepidodendron, Sigillaria and Stigmaria.

Practical.

Fossils :

Those in the list already given.

Minerals.

(1) Those in the syllabus under various headings and ores under (2).

(2) Wet and dry tests of the following :—

Anglesite, Anhydrite, Apatite, Arsenopyrite, Barite, Bauxite, Calcite, Cassiterite, Celestite, Cerussite, Chalcopyrite, Chromite, Dolomite, Gypsum, Haematite, Ilmenite, limonite, Magnesite, Magnetite, Malachite, Orpiment, Psilomelane, Pyrite, Rhodochrosite, Rutile, Siderite, Simithsonite, Sphalerite, Strontianite, Witherite and Wolframite.

Rocks :

Megascopic and microscopic study of the following rocktypes:—

Micagranite, hornblend-granite, tournmaline-granite, Pegmatite, amphibole-syenite, pyroxene-syenite, nepheline-syenite, theralite, mica-diorite, hypersthene-diorite, quartz-diorite, olivine gabbro, norite, eclogite, peridotite, dunite, pyroxenite, anorthosite, syenite porphyry, diorite porphyry, dolerite, lamprophyre, obsidian, quartz porphyry, rhyolite, trachyte, phonolite, andesite, basalt, pyroxene granulite, amphibolite, Chiastolite slate, biotite gneiss, garnetiferous gneiss, cordierite sillimanite gneiss, mica, schist, hornblende schist, quartzite, crystalline limestones, charnockite, khondalite, gondite.

Sedimentary Rocks :

The more important types :

Structural Geology.—Exercises in plotting of outcrops in contour maps, reading of maps relating to thickness, unconformity, simple folds and faults ; construction of sections ; simple dip and strike problems.

Branch VIII—GEOGRAPHY

Paper I—Same as for B.A. Group-A, Paper I.
Paper II—Same as for B.A. Group-A, Paper II.
Paper III—Same as for B.A. Group-A, Paper III.
(*vide* B.A. syllabuses 31 to 34.)

Paper IV—Optional Subjects : Any one of the following :

Geomorphology, Climatology and Oceanography, Biogeography and Cartography.

Practical Geography I—Map Work.

Practical Geography II—Surveying and Map Projections.

Same as for B.A. Group-A, Paper IV.

Syllabuses and Text-books for Optional Subjects:

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GEOMORPHOLOGY.

An elementary treatment of the following :—

1. (*a*) *Earth as a member of the Solar system.*—The fundamental principles of the main theories regarding the origin of the earth.

(*b*) *Earth as a unit.*—Structure—Physical and chemical, and the evidence relating thereto.

(*c*) *Surface of the earth.*—Distribution of land and sea and the theories regarding their present distribution ; Isostasy and its bearing on surface configuration.

(Section I should be dealt with in greater detail than in the Physical Basis paper for the Pass.)

2. *Materials of the earth's crust.*—Minerals and rocks—two-fold classification—division into igneous, sedimentary and metamorphic groups and their sub-divisions based on their mode of formation and chemical characters.

An elementary knowledge of the more important rock forming minerals like quartz, felspars, amphiboles ; pyroxines, mica-chlorites, carbonates, iron oxides, in so far as they lead to a better understanding of the rocks—examination of common rocks and minerals and their identification in the hand specimens.

Mode of formation and structures associated with rocks—scenic features of important rock types.

Simple geological structures.—Dip and strike, deformation of the earth's crust—joints, folds and faults—tensional and compressional, and their topograhic effects—construction of block diagrams to illustrate the common effects of faults.

Interpretation of geological maps to illustrate common structures and drawing of sections.

3. *Geological time scale.*—Basis of division—standard time scale and the Indian equivalents thereof—an elementary knowledge of the Indian Stratigraphy—the main divisions, their geological characters, geographical distribution and economic importance.

4 *Land forms.*—Classification into the first, second and third orders—constructional and destructional.

Geomorphic processes—weathering, rivers, ground water, air, glacier, waves and currents and organisms.

5. *Geomorphic Units.*—Simple structures : (1) Plains, Plateaus and Karsts.

Complex Structures : Domes, Fold mountains, Faulted Block mountains.

Shields and their structures.

6. *Cycle concept in Geomorphology.*—Development of the Fluvial cycle in (*a*) young lands, (*b*) old lands and (*c*) in domes and folded structures.

Interruptions of the Fluvial cycle and their consequences.

Davisian and Walther Penck Systems.

7. *Geomorphic cycles* in deserts, lime-stone areas, glaciated countries (Knowledge of a type area is expected).

8. *Volcanic landscapes.*—Volcanic plains and plateaus, domes and mountains.

Evolution of relief in volcanic areas.

9. *Coastal forms.*—Erosional and constructional—progradation and retrogradation—coastlines of submergent, emergent and composite characters.

10. *Mountains.*—Origin, development, dissection and destruction of mountains.

(Students will be expected to have some knowledge of the main geomorphological features of India.)

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CLIMATOLOGY AND OCEANOGRAPHY.

An elementary treatment of the following :—

Climatology :—

1. The earth as a planet. Its movement and relations to the sun, the consequent distribution and seasonal variation of insolation over the earth's surface.

2. The atmosphere. Distribution and periodic variation of—
   (*a*) The pressure and temperature of the air—adiabatic temperature changes.
   (*b*) Air movements and wind systems—the nature, origin and distribution of planetary, seasonal and local winds.
   (*c*) Humidity and Precipitation.
   (*d*) The structure of the atmosphere—stratosphere and troposphere—air masses—cyclones and anti-cyclones, temperate and tropical.
   (*e*) Thunderstorms, Tornadoes, Clouds, Fog, Mist, Dew, Snow, Hail, Hoar Frost, Lightning and Thunder, Aurora, Mirage, Halo, Twilight, Rainbow, Coronas, etc.

3. The factors and elements of climate.

4. Classification of climates. Climatic control of soil types and of the regime of rivers.

5. Chief climatic types and their regional variations, the effect of such climates on life.

6. The construction and use of the chief meteorological instruments, weather maps and their interpretation—Seasonal and daily weather forecasts.

7. Climatic changes, Periodic and secular variations, the principal theories.

Books recommended for study:—

1. Austin Miller : Climatology.
2. Kendrew : Climate.
3. Kendrew : The Climates of the Continents.
4. Trewartha : Weather and Climate.
5. Brooks : Evolution of Climate.
6. Shaw : Forecasting Weather.

7. Brunt : Meteorology.
8. Lempfert : Meteorology.
9. Huntington : Climatic Changes.
10. Coleman : Ice Age—ancient and recent.
11. Thomas Blair : Climatology.
12. Pettersen : Meteorology (McGraw Hill).
13. Conrad : Methods in Climatology.
14. Zeuner : Dating the Past.
15. Meteorological Glossary.

Oceanography :

1. Form of sea and ocean beds—origin of the oceans and seas.
2. Floor of the oceans—characteristic features of the ocean basins.
3. Properties of ocean waters : (*a*) Temperature of oceans and seas. (*b*) Composition of rivers, lake and ocean waters. (*c*) Salinity of oceans and seas—causes and effects. (*d*) Waves and tidal movements—their causation and effects. (*e*) Ocean circulation, its origin and effects.
4. Methods of oceanographical survey and their development.
5. Plant and animal life in the oceans and seas—economic exploitation.
6. Marine deposits—Shallow water and pelagic deposits.

Books recommended for study:—

1. Murray : Ocean.
2. Jenkins : Text-book of Oceanography.
3. Johnstone : Introduction to Oceanography.
4. Johnson : Shore Processes and Shore line development.
5. Daly : Changing World of the Ice Age.

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BIO-GEOGRAPHY.

1. Introduction :

   Characteristics of plants and animals and their classification (the main classes and phyla).

2. General :

   Biology and Bio-geography—reproduction of plants and animals—their dispersal—struggle for existence—surviva of the fittest—evolution—different theories.

3. Environment :

A. *Plants.*—(*a*) Habitat factors ; (1) Origin and classification of soils, major soil groups of the world. (2) Water salts and organic matter. (*b*) Climatic factor—effect on plant life—world climatic belts and vegetation belts. (*c*) Plant adaptation to environment, xerophytes, hydrophytes, epiphytes. (*d*) Plant communities—forests—grass lands, marine and aquatic—plankton and submerged plants.

B. *Animals.*—(*a*) Environment—its effects on development and habits. (*b*) Habitat—terrestrial, aquatic, arboreal ; vertical distribution of animals in the sea-corals and coral reefs. (*c*) The Zoo-Geographical regions of the world—Neogaea Notagaea (Australia—Malayan and Polynesian and Hawaiian Regions), Actogaea (Holarctic and Ethiopian), Ethiopians—Africa, Oriental with reference to India.

4. Palaeo-Geographic Distribution :

Geological eras and their sub-divisions with special reference to the dominant plant and animal forms—present and past distribution and land connections.

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CARTOGRAPHY.

An elementary treatment of the following :

1. Shape and size of the earth. Geodetic surveys, Gravity surveys, the theodolite and its errors.
2. Methods of Trigonometrical surveying including Triangulation, Resection and Traversing. Sextant and its uses. Traverse co-ordinates, Triangulation co-ordinates, Convergence of meridians, Solution of right-angled spherical triangles, Times of sunrise and sunset in any place (including the relationship between hour angle and declination). Determination of distances and directions on the earth.
3. Determination of latitude by simple observations on the sun the moon and the stars (candidates should be able to use the nautical almanac for this purpose). Atmospheric refraction.
4. Time, sidereal, mean and apparent. Time and longitude. Longitude by wireless signals and by the moon.
5. International Date Line.
6. Simple methods of determining azimuth.
7. Photographic surveying—Photo theodolite.

8. Advanced Map Projections :

(a) Conical—Simple conical with 2 standard parallels, rectangular, polyconic, conical equal area with one and two standard parallels, the conical orthomorphic.

(b) Cylindrical—Mercator's, Cassinis, Gauss's.

(c) Transverse and oblique zenithal projections.

(d) Others like the Mollweide (candidates are expected to make the necessary derivations). Combination of the Mollweide and the Sinusoidal, etc.

(e) Cubic projection. (Gnomonic)—Perspective projections. Oblique, Orthographic, Aitoff's, Clark's, etc.

(Candidates are expected to derive the formulae and to draw the nets).

Books Recommended.—

1. Steers : Map Projections.
2. Jameson and Ormsby : Surveying and Map Projections, Vol. II.
3. Erwin Raisz : Cartography.
4. Hinks : Maps and Survey.

BRANCH IX—PHYSIOLOGY.

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Syllabuses.

Application of physico-chemical laws to physiological processes. Surface tension and surface phenomena. Diffusion, Osmosis. Properties and functions of cell membrane. Cell permeability. The properties of colloidal solutions. The Donnan equilibrium.

Chemical constitution and properties of proteins, lipides and carbohydrates. Composition of tissues and body fluids.

Catalysis in biological processes. Enzymes : Classification, composition and characteristic features.

Sources and transformation of energy in living organisms. Relation between chemical, mechanical and thermal changes. Work and efficiency.

Blood ; structure, composition, formation and destruction ; respiratory functions and buffer mechanisms. Immunity. Blood grouping. Lymph, tissue-fluid and cerebro-spinal fluid.

Anatomy of the heart and general arrangement of the circulatory system. The properties of cardiac muscle. Origin, transmission and control of the heart beat. Pressure changes and time relations in the cardiac cycle. Blood pressure and blood flow throughout the vascular system, and their nervous and chemical control.

Mechanics of respiration. Gaseous interchange. Control of pulmonary ventilation. Effects of depth and altitude. Circulatory and respiratory changes in exercise.

Mechanism and control of the secretion of digestive juices. Composition of juices Digestion and absorption of foodstuffs. Movements of the alimentary tract.

Metabolism. Exchanges of matter and energy. Nitrogenous equilibrium. Intermediate metabolism of protein, fat and carbohydrate.

Regulation of body temperature. Functions of the skin.

Nutrition. Dietary requirements at different ages and under different conditions. Mineral metabolism. Vitamins: Origin, properties and functions. Tissue oxidation.

Endocrine organs : functions and inter-relationships. Chemical constitution of hormones.

Excretary organs. Functions of the kidney. Composition and formation of urine. Micturition.

Reproduction. Development and functions of sex organs.

Ovulation and spermatogenesis. Fertilization. Formation and functions of the placenta. Development of mammary glands. Parturition and lactation.

The physiology of striated muscles, smooth muscle and nerve Excitation. The nerve impulse and its transmission centrally and peripherally.

General anatomy and functions of the nervous system in man : Origins, destinations and functions of the fibre tracts of the cerebro-spinal axis. Reflex-action. Maintenance of tone and posture. Special functions of the brain stem, cerebellum and basal ganglia. Cerebral cortex, including functional localization and conditioned reflexes.

Sense organs : structure and function.

The autonomic nervous system.

PRACTICAL WORK.

Histology, including the staining and mounting of paraffin sections of the different organs of the body to show general structure and the various tissues of which they are composed. The preparation from fresh material of suitably stained permanent specimens of the elementary tissues including blood, lymph and marrow, nerve cells and nerve fibres. The staining of specimens of the spinal cord and medulla to show nerve fibres and nerve cells.

Animal experiments. Experiments on the frog muscle-nerve preparation which illustrate the physiological properties of muscle and nerve. The properties of cardiac muscle, and the initiation and control of cardiac rhythm in the frog. Study of the mammalian heart by perfusion of the coronary circulation. The properties of smooth muscle as shown by the intestine and uterus. Suitable experiments to illustrate the action of hormones.

Experiments on the human subject. Blood counts and colour index. Blood grouping. The adaptability of the circulatory and respiratory systems to changed conditions, including experiments on circulation in the skin. Metabolism, metabolic rate, work. Factors influencing the flow and composition of urine. Reflex time. Experiments on eye : visual acuity, accommodation, measurement of blind spot, field of vision, binocular vision, colour vision, etc. Experiments on hearing and equilibration.

Chemical physiology. Qualitative tests which illustrate the properties of carbohydrates, lipides and proteins in food and animal tissues. Separation and estimation of fats, carbohydrates and proteins in foods and tissues. Experiments to illustrate the action and properties of enzymes. Quantitative work on enzymes. Digestion : test meals qualitative and quantitative experiments on digestive juices. Urine chemistry : qualitative tests for and estimation of the main constituents. Experiments on tissue oxidation.

Blood : coagulation, spectroscopic analysis, preparation of derivatives of haemoglobin. Estimation of haemoglobin, oxygen capacity, percentage oxygen saturation and carbon dioxide content. Estimation of (blood constituents such as) sugar, urea.

B.Sc.

GROUP-B SUBJECTS

BRANCH I—MATHEMATICS

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Statistics as Ancillary Subject.

The distribution of topics allotted to the two papers are as follows:—

Paper I.

Scope of statistical methods. Collection of data—Classification by categories and measurements. Discrete and continuous variation. Tabulation in respect of one or two characters.

Graphical and diagrammatic representation—Bar diagrams, pie diagrams, scatter diagram ; histogram ; frequency polygon, frequency curve, ogive ; logarithmic graphs.

Measures of location—mean, median and mode. Measures of dispersion—mean deviation—standard deviation, quartile deviation, co-efficient of variation. First four moments ; measures of skewness β_1 and β_2.

Association of attributes, contingency table. Correlation—co-efficient of correlation and its interpretation. Regression equation.

Fitting first and second order polynominals by method of least squares.

Linear interpolation ; Newton's and Lagrange's formulae ; simple problems.

Paper II.

Rules of probability, addition and multiplication; simple problems.

Theoretical distributions—binomial and its limiting forms, Poisson and Normal, properties of these distributions, the importance of these distributions in statistical studies.

Statistical populations and sampling distributions ; basic concepts of statistical reasoning.

Standard errors of proportion, mean, Standard deviation and correlation co-efficient. Large sample tests.

Uses of x^2, t and F tesst. Tests for independence in a contingency table.

Sample surveys—choice of sample, random sample, stratified and systematic. Use of questionnaire, practical problems in organising and conducting sample studies.

Planning of Scientific experiments; principles of experimentation.

Practical work.

(Examples to be set in both the papers).

The practical work should include exercises bearing on the above topics. The problems chosen should provide scope for an intelligent understanding of the theory and acquaint the students with computational procedures. Use of slide rules, mathematical tables and graph paper should be included.

Books for Study and Reference :—

Yule and Kendall : Introduction to Statistics.

Hoel, P. : Introduction to Statistics.

Weatherburn : Statistics.

Dixon, W. J. & Massey: Introduction to Statistical analysis.

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Physics (Ancillary).

Two theory papers of 3 hours' duration each and one practical paper of 3 hours' duration.

Preliminary.—Units of measurement—accurate measurement of length—verniers, vernier callipers—Screw gauge—Spherometer—Measurement of mass—spring balance—common balance—measurement of time—Simple Pendulum.

Dynamics.—Displacement, speed, velocity—Uniform velocity—Uniform acceleration—velocity time curve—Equations of motion—parallelogram law of velocities and acceleration—Simple harmonic motion—measurement of 'g' by simple pendulum. Momentum—impulse—Newton's laws of motion—Definition of Force—measurement of force—Weight and mass—gravitational units—law of conservation of momentum—work, power, energy—Potential and kinetic energy—Law of conservation of energy—motion down and inclined plane—water power.

Statics.—Resultant and equilibrant—parallelogram law of forces verification of law—Resolution of force—equilibrium of three forces at a point—Triangular law of force—verification—application of triangular law of force—conditions of equilibrium.

Moment of force—equilibrium under parallel forces—the lever principle and its application—common balance, its requisites—centre of gravity and its position in bodies—centre of gravity of regular objects and combined objects—stability and centre of gravity—Machines—three classes of levers—three systems of pulleys—relation between mechanical advantage, velocity ratio and efficiency—Weston differential pulley—Wheel and axle—Principle of screw driver—inclined plane—parallel and horizontal effort—Friction—Laws of friction, Elasticity—Hooke's law—Elastic modulii—Determination of Y by stretching.

Hydrostatics.—Pressure at a point. Thrust, Lateral Thrust—Pascal's law. Transmissibility of fluid pressure—Brahma press—Density and specific gravity Archimedes principle—upthrust of a liquid—determination of specific gravity using Archimedes principle—density of a solid, liquid, light solid and soluble solid, etc.—law of flotation—floating of ships—Plimsoll line—hydrometers—Archimedes principle applied to gases—Hare's apparatus—Atmospheric pressure—pressure and thrust of fluids—differences between liquids and gases—Liquids pressure—Hydraulic press—Torricelli's vacuum—magnitude of atmospheric pressure—Magdeburg hemispheres—Fortin's Barometer and aneroid barometer—manometers—Boyle's law. Diving bell—compression pump—air pumps—Rotary pumps—diffusion pump—Mcleod's gauge—Force pumps and centrifugal pumps.

Surface Tension.—Definition—experiments to illustrate effects of surface tension—Capillary rise—Drops and bubbles—surface energy—Determination of surface tension by drop weight method and Torsional balance method—spreading of liquids—surface films—molecular layer.

Osmosis and Diffusion.—Laws of Osmotic pressure—vapour pressure of solutions—Boiling and freezing point of solutions—Graham's law—Fick's law—experiments to find 'K'—analogy with heat conduction.

Viscosity.—Co-efficient of viscosity—experimental determination of viscosity by flow of liquid through a narrow horizontal tube; comparison of viscosities—Ostwald's viscometer.

HEAT.

Measurement of Temperature.—Types of thermometers and scales of temperature—centigrade, Fahrenheit and Reaumer systems—Mercury thermometer—steam point and ice point—Alcohol thermometer—clinical thermometer—Maximum and minimum thermometers—Pyromocouple thermometers.

Expansion of Solids and Liquids.—Expansion of solids—co-efficient of liner expansion (α) experimental determination co-efficient of superficial expansion (β) and co-efficient of cubical expansion (γ) of a solid—experimental determination—Relation between α, β and γ—consequences of expansion of solids—balance wheel of a watch, and compensated pendulum—co-efficient of cubical expansion of a liquid—apparent and real expansion and the relation between them—Determination of apparent and absolute co-efficient of expansion of a liquid.

Expansion of Gases.—Volume co-efficient and pressure co-efficient—Charles' law, equality between volume co-efficient and pressure co-efficient—absolute scale of temperature—gas equation—correction for Barometer.

Calorimetry.—Units of heat—specific heat of solids, liquids and gases—Newton's law and radiation correction (approximate)—changes of state—laws of fusion—evaporation and boiling—total heat of steam—experimental methods of determining latent heat of steam and ice.

Kinetic Theory.—Postulates and expression for pressure—Deduction of Boyle's law—Charles', Avagadro's and Graham's laws—Deviations from Boyle's law—Amagat's and Andrew's experiments—Vander Waals' equation—Liquefaction—critical constant—refrigerating machines—vapour pressure and hydrometry.

Thermodynamics.—First law of thermodynamics—Determination of J; Isothermal and adiabatic changes—Two specific heats of a gas and their relation—Determination of γ by Clement and Desormes method—work done in Isothermal and adiabatic expansions—Heat engines and their general principles of working—Carnot's engine—Indicator diagram efficiency—Carnot's theorem—Second law of thermodynamics and thermodynamical scale of temperature.

Conduction and Radiation.—Thermal conductivity—Searle's method—Lee's method—convection of heat, land and sea breezes—Radiation—Stefan's law—Newton's law as approximation of Stefan's law—Solar constant. Pyroheliometer.

Sound Vibrations and Waves—Simple treatment of vibrations—harmonic vibrations and waves—forced harmonic vibrations—Resonance—velocity of sound waves—velocity of sound in air, and its dependence on Pressure and temperature—Relation between v, n. and λ Reflection of sound—accoustics of rooms—refraction of sound—stationary waves—wave length and its relation to nodes and antinodes—vibration in strings—Laws of Transverse vibration of strings—sonometer—Beats.

Vibrations of Air in Pipes.—Open and closed pipes—overstones—Resonance, measurement of velocity of sound in air—sound recording.

LIGHT.

Rectilinear propagation—shadows—Eclipses—Photometry—Rumford's, Joly's and Bunsen's photometers.

Reflection of Light at plane surfaces.—Laws of reflection—formation of image and its characteristics—Periscope—Parallel mirrors and inclined mirrors—Deviation of a ray by a rotating mirror—Sextant—single optic lever.

Reflection of Light at Spherical surfaces.—Convex and concave mirrors—principal focus and focal length—relation between focal length and radii of curvature—images formed by concave and convex mirrors and the relation between their positions with respect to the positions of the object and focal length of the mirror—experimental determination of focal length, characteristics of images.

Refraction of Light at plane surfaces.—Laws of refraction—refraction through a parallel slab—expression for and lateral displacement—relative positions of object and its image due to refraction through a slab. When the object is closest or at a distance from the farther face—expression for the shift—total internal reflection and critical angle—total reflecting prism—measurement of critical angle and refractive index—refraction through a prism—conditions for minimum deviation —derivation of $\mu = Sin \frac{A+D}{2} / Sin A/2$ Spectrometer and determination of A, D and μ.

Refraction at Spherical surfaces.—Thin lenses, convex and concave, optic centre—focal length—Relation between u, v and f. Characteristics of images formed—Relation between focal length, refractive index of the material of the lens and the radii of curvature of their surfaces—liquid lens—determination of the refractive index of a liquid—combination of two lenses—focal power *Optical Instruments*—Telescope—

refracting and reflecting types—simple and compound microscopes. Magnifying power of Telescopes and microscopes, Eye—camera—projection lantern—Epidiascope—Binoculars—defects of the eye, correction, dispersion—absorption and radiation spectra—Fraunhofer's lines and explanation.

Physical Optics.—Velocity of light—Romer Fizeau Foucault, and Michelson's methods—significance of Foucault's experiment—support to wave theory—Huygen's theory of wave propagation—Explanation for reflection and total internal reflection—Interference—Young's experiment—Frennel's biprism experiment—Newton's rings—experiment—colours of thin films—testing of planeness surfaces—Diffraction—rectilinear propagation—diffraction at straight edge—and rectangular aperture—transmission grating—grating spectrometer—Polarisation by reflection and refraction—Brewster's law—double refraction—Nicol—Polaroid—rotation of plane of polarisation—Sacharimetry.

MAGNETISM.

Poles—inverse square law—force between poles—unit pole—natural and artificial magnets—magnetic field—intensity and lines of force—couple acting on a magnet—magnetic moment—intensity of field (1) at a point along the axis—(2) at a point along the equator and (3) at any point—Neutral point and mapping of field—Earth's magnetic field—dip declination and H—their measurements; compass—deflection magnetometer—Tan A and Tan B positions—comparison of magnetic moments—vibration magnetometer—measurement of M and H—verification of inverse square law—magnetic properties of materials—intensity of magnetisation—susceptibility and permeability—determination of permeability by magnetometer method I-H and B-H curves—magnetic hysteresis—cycle of magnetisation—Ferro, dia and Paramagnetic substances.

Electrostatics.—Positive and negative electricity—Frictional electricity—conductors and insulators—Gold leaf electroscope—Induced charges—charging by induction—Faraday's ice-pail experiment distribution of charge on a conductor—action of points—the lightning conductor—electrostatic machines—the electrophorus—Wimshurts machine—Van de graff's generator—Coulomb law—electrostatic unit of charge—electric and intensity—electric potential—earths potential—positive field and negative potential—condensers—charging capacity—action of a condenser—Leyden jar—electrolytic and paper condensers.

Electrodynamics.—Magnetic field due to a current passing through a straight conductor, a circular coil and a solenoid—Corkscrew rule—electro magnet—the buzzer—telephones—carbon microphone—moving iron ammeter—tangent galvanometer—moving coil galvanometer—Telegraphy—Ohm's law and its applications—electrical measurement—Metre-bridge-P.O. Box—Potentiometer—Faraday's laws of Electrolysis—Arrhenius theory—cells—primary and secondary—accumulators acid and alkai type—Standard cell—Joule's law—heating effects of current—force exerted on a current carrying conductor in a magnetic field—Fleming's left hand rule for direction of force—moving coil instrument—Mirror galvanometer—electric motor—moving coil loud speaker—laws of electric and magnetic induction—Leinz's law—Primary and self inductance and mutual inductance—induction coil—Eddy current—induction furnace—rotating coil—A.C. and D.C. generator—transformer—Power transmission—Rectifiers.

Electronics.—Discharges of electricity through gases—determination of e/m; evaluation of e—thermionic valve—Radio receiver—simple valve circuit—cathode ray oscillograph—photo electric cell—X-rays—Production and properties—Coolidge tube—application of X-rays—radio activity—and α, β, γ particles—induced ratio activity—cosmic rays—Elementary study of the structure of an atom.

LIST OF EXPERIMENTS IN PHYSICS FOR THE ANCILLARY COURSE OF TWO YEARS.

1. Measurement with Spherometer.
2. Young's Modulus by stretching.
3. Surface tension by capillary rise.
4. Surface tension by pull on a plate.
5. Surface tension by drop weight method, interfacial tension.
6. Viscosity of flow of liquid in a capillary tube.
7. Comparison of viscosities.
8. Co-efficient of linear expansion of a solid—optic lever.
9. Co-efficient of expansion of air at constant pressure.
10. Co-efficient of expansion of air at constant volume.
11. Specific heat of a liquid method of mixture.
12. Specific heat of a liquid—using a known solid.
13. Latent heat of ice.
14. Latent heat of steam.
15. Newton's Law of cooling, verification and sp. heat of a liquid.
16. Thermal conductivity—Searle's apparatus.

17. Refractive index by critical angle (*a*) glass prism and (*b*) air cell in liquid.
18. Refractive index by microscope.
19. Concave and convex mirrors—determination of focal length.
20. Concave and convex lenses—determination of focal length.
21. Refractive index—liquid lens.
22. Spectrometer—refractive index of a solid.
23. Spectrometer—Wave length of light—Transmission grating—normal incidence.
24. Newton's rings—Reflected light—radius of curvature.
25. Polarimeter—rotation of plane of polarisation.
26. Comparison of magnetic moments—Deflection magnetometer.
27. Inverse square law—pole strength—deflection magnetometer.
28. M. and H. determination.
29. Current by tangent galvanometer.
30. Resistance by Metre Bridge.
31. Resistance by Post Office Box—Temperature co-efficient of resistance.
32. Electrolysis—Copper voltmeter—e.c. e. of copper.
33. Resistance of a galvanometer—half deflection method.
34. Figure of merit of a galvanometer.
35. E.M.F.—Sum and difference method, substitution method.
36. Conductivity of an electrolyte.
37. E.M.F. Potentiometer method.
38. Current by potentiometer, calibration of ammeter.
39. Resistance by potentiometer.
40. Internal resistance of a cell by potentiometer.
41. Joule's law—Determination of J.
42. Sonometer—Laws of Transverse vibration of strings.
43. Resonance—Velocity of sound in air.

Books Recommended for Reference :—

1. Intermediate Physics—C. J. Smith (Arnold).
2. A Course of Physics—H. A. Perkins (Blackie).
3. Analytical Experimental Physics (Lemon and French), University of Chicago Press.
4. A Laboratory Manual of Physics for Intermediate students—Tyler (Arnold).

5. Practical Physics—K. S. Venkatesan.
6. Text-book of Physics—J. Duncan and S. G. Starling (Macmillan)
7. Elements of Physics—A. W. Smith (McGraw Hill).

(30)

Numerical Mathematics.

Construction and use of nomograms.

Nomograms for the solution of linear, quadratic and trigonometrical equations.

The use of a slide rule.

Graphical solution of problems : logarithmic, semi-logarithmic, trilinear rulings.

Reference books :—

S. Brodetsky : A First Course in Nomography.

John Maclean : Descriptive Mathematics especially Chapters I and IV.

John Maclean : Graphs and Statistics especially Chapter IX.

Whittaker and Robinson : Calculus of Observations, Chapter VI.

Whittaker and Robinson : Interpolation.

(Detailed Syllabus)

Numerical Mathematics.

Syllabus.

Paper I.

Finite differences—operators E and Δ ; interpolation with equal intervals ; divided differences, horizontal and diagonal difference tables ; interpolation with unequal intervals ; central differences—Gauss, Stirling, Everett and Bessel's formulae. Inverse interpolation. Differences of Zero ; symbolic operators.

Nomography : construction and use of nomograms ; nomograms for the solution of linear, quadratic and trigonometrical equations

Graphical solution of problems ; logarithms, semi-logarithmic, trilinear rulings.

The use of a slide rule.

Paper II.

Numerical differentiation. Numerical integration, Simpson's three-eighths and Weddle's rules. Euler Maclaurin formula, application to summation of series; Newton—Cote's formula. Stirling's approximation for factorial.

Numerical solution of equations in one unknown. Newton's approximation for determining roots; use of calculus of differences—Horner's method.

Books for Study and Reference :

(Only relevant sections of the books need be used).

Freeman, H : Mathematics for Actuarial Students, Vol. II.

Whittaker, E. T. & Robinson, G. : The Calculus of Observations.

Steffensen, J. F. : Interpolation.

Beodetsky, S. : A First Course in Nomography.

John Maclean : Descriptive mathematics (especially Chapters I and IV).

John Maclean : Graphs and Statistics.

Milne Thompson, L. M. : The Calculus of Finite Differences.

BRANCH II—STATISTICS.

Ancillary Subjects :

Physics ; Mathematical Economics; Biology ; Numerical Mathematics ; Educational Psychology.

Syllabus :

(29) Physics—Same as for Group-B—Physics under Branch I.

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Mathematical Economics.

Syllabus.

(The treatment of the subject should be mathematical.)

Paper I.

Scope of Economics, Nature of Economic laws, fundamental concepts. Scope of mathematical methods in Economics.

Consumption—wants and their nature, marginal concept, derivatives ; the law of diminishing marginal utility.

Demand—demand functions and curves ; elasticity of demand, logarithmic derivatives, scales of preferences—economic plan of a household, indifference curves and surfaces.

Supply—Supply functions ; mathematical treatment of interaction of supply and demand.

Cost—Average and marginal cost ; cost elasticity and normal cost conditions, Market value and normal value—simple equilibrium ; analysis under perfect and imperfect competition ; conditions of joint and composite supply and demand—problems of monopoly duopoly.

Production—factors of production and their combinations ; Law of returns ; production functions and surfaces. Constant output curves. Competitive and complementary goods, elasticity of substitution.

Paper II.

Theories of population growth—logistic curve ; population trends.

Individual income ; distribution of incomes. Pareto's Law—unequality of incomes ; income elasticity.

Levels of living ; family budgets, price statistics, cost of living indices.

Social capital and social product, methods of calculating national income—applications to India.

Theory of rent. Law of differential returns.

Theory of wages, marginal productivity ; interest, elementary treatment of liquidity and preference theory.

Money and banking ; functions of money, quantity theory.

Books for Study and Reference :

Allen, R.D.G. ; Mathematical Analysis for Economics; Joan Robinson : The Economics of Imperfect Competition; Benham, F. : Economics—a general text-book for students; Stonier, A. W. & Hague, D. C. : A Text-book of Economic Theory; Wold, H. and Jureen, L. : Demand Analysis (Relevant sections).

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BIOLOGY.

This Syllabus in Biology for the Statistics Major students has been designed in two parts, Parts A and B. Part A largely deals with

Botanical aspects and Part B with Zoological aspects. Nevertheless, overlap in the Genetics portion is obvious and this can be covered as an integrated subject by either the Botanist or the Zoologist. Notwithstanding this, the Botany portion and the Zoology portions are best taught by qualified teachers.

Of the theory papers for the examination, one can contain the Botany portion and the other the Zoology portion; but problems in Genetic can appear in both the papers, whether it be botanical or Zoological in approach. However, the correction of the two theory papers has to be done by Botanist and Zoologist separately. Likewise, the Practical examination can be conducted jointly by a Zoologist and a Botanist.

PART A.

Theory :

1. The cell as a living unit; Physical and Chemical properties of protoplasm; Cell division—Mitosis and Meiosis; Uni-cellular and multi-cellular organisms.

2. The following plant :

General external features and modifications of the root, stem and leaf; The biology of the flower; The fruit; An elementary knowledge of embryology.

Tissus and their functions; The distribution of tissues in the root, stem and leaf.

3. Soil conditions and plant growth :

Soil and its nature; Absorption, conduction and transpiration; Photosynthesis and nitrogen metabolism; Respiration; Growth and movements—geotropism, phototropism, hydrotropism; The role of enzymes and auxions; Effects of radiation on plant life; A general idea of antibiotics and microbial metabolism.

4. The plant kingdom :

Bacteria; An elementary idea of plant viruses.

Algae—Chlamydomonas, Ulothrix, Spirogyra.

Fungi—Rhizopus, Penicillium, Yeast, Neurospora, Agaricus,

Bryophyta—Marchantia.

Pteridophyta—Fern.

Gymnosperms—Cycas.

Angiosperms.—Chief distinguishing characters of Dicots and Monocots. A knowledge of the following families:—

Malvaceae, Tutaceae, Leguminosae, Solanaceae, Compositae, Labiateae, Euphorbiaceae, Palmae, Musaceae, Gramineae.

5. Plant geography:

A general idea of the occurrence and distribution of plants with special reference to climatic conditions.

6. Heredity and plant breeding:

Mendel's laws of inheritance; Chromosomes; genes; crossing over, Chiasma formation, genetic and cytological proof of crossing over; Linkage; variation in chromosome number; Mutations; Hybridization.

Practical Work :

1. Examination under the microscope of stages in mitosis from onion root tip, meiosis from Liliumanther, Embryo development.

2. To prepare glycerine mounts of plant material, and prepare and identify the sections of parts of plants.

3. To demonstrate the fundamental aspects of plant physiology such as transpiration, photosynthesis, respiration and growth.

4. To identify and describe the microscopic and macroscopic types included in the syllabus.

5. To identify the families specified in the syllabus

6. Application of elementary statistical knowledge like analysis of variance or standard error etc. on populations of mixed seeds, leaves etc.

Books for study :

1. College Botany by Fuller & Tippo.
2. Plant Physiology by Raber.
3. Elements of Plant Pathology by Melhus & Kent.
4. Genetics by Coulter.
5. Genetics for Medical Students by E. B. Ford.

PART B.

Theory :

Organisms and their characters; Protein; Protoplasm; Cell and parts of a Cell; Cell division (Mitosis); Tissues; Organs.

Structure and physiology of the following animals treated in an elementary manner :—

Ambeba, Paramoecium, Hydra, Earthworm, Cockroach, Shark, Frog, Calotes, Pigeon and Rat.

The main animal phyla and their basic features.

Elements of embryology (eggs, fertilization, cleavage, gastrulation, formation of the definitive adult form).

Heredity: Experiments and laws of Mendel, mechanism of heredity, chromosomes, genes, meiosis, linkage, crossing over.

Evolution: Evidence for evolution; Theories of the mechanism of evolution; variation; Mutations in relation to evolution, Fundamentals of population genetics; Hardy-Weinberg law.

(30) Numerical Mathematics—The same as for Group B—Numerical Mathematics under Branch I.

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Educational Psychology.

1. Definition, scope, methods, relation to other sciences.
2. Physiological basis of learning, nervous system, sense organs. Reflexes. Conditioned reflexes.

3. Developmental processes—Motor, Social, Intellectual and emotional developments—Role of heredity and environment.

4. Thought Processes: Perception. Thinking. Reasoning. Imagination.

5. Motivation: Learned and unlearned. Emotions. Interests. Attention.

6. The Learning Processes: Kinds of learning. Theories and laws of learning. Trial and error versus insightful learning. Transfer of training.

7. Remembering and forgetting.

8. Intelligence: Its nature and measurement.

9. Personality: Its nature. Traits and types of Personality.
   Diagnostic tests. Word Association, T.A.T., Research Test.

10. Construction and use of Educational and Psychological Tests.
    Intelligence Tests. Achievement Tests. Aptitude Tests
    Diagnostic Tests. Attitude Tests. Questionnaire, Rating scales. Inventories. Profile.

11. Mental Hygiene and Behaviour Problems.

BRANCH III—PHYSICS

1. Mathematics.
2. Composite Course in Mathematics and Chemistry.
3. Chemistry.
4. Geology.
5. Statistics.

(34)

Mathematics—Ancillary to Physics and Chemistry—Main.

There shall be 2 papers of 3 hours' duration each at the end of the second year, each carrying 75 marks.

The subjects are to be taught with greater emphasis on application to Physics or Chemistry.

Paper I.

Algebra.—Remainder Theorem and factorization. Index Laws. Surds. Logarithms and use of the slide rule. Quadratic equations. The 3 progressions. $_nP_r$, N!, $_nC_r$. Binomial Theorem for a positive integer. Applications of Binomial theorem. Exponential and Logarithmic series. Solutions of Linear Equations in 2 and 3 variables. Determinants. Elementary Probability. Newton's and Horner's method of approximation to roots of an equation.

Calculus—Differentiation of x^n, Sin x, Cos x, e^x, log x. Inverse function. Differentiation of sum, pr. quotient and simple function of a function. Differential co-efficient as a rate measurer. Successive differentiation. Simple examples on maxima and minima. Tangents and normals and curvature of plane curves. Partial differentiation—Notion of Differentials errors and approximation.

Integration.—Standard integrals; Integration by simple substitution and by parts. Application to find length of arcs, areas, volumes, Centroid, M.I.

Differential equations.—First order including the following type: 1. Variables separable; 2. Homogeneous Equations; 3. Linear Equations; 4. Bernouillis' Equations.

Second order.—Linear with constant co-efficient. Applications to damped oscillations and Forced vibrations. Application for Fourier series.

Paper II.

Geometry.—Elementary properties of triangles, Parallelograms, trapeziums, and regular polygons of n sides. Simple solid figures, solid angles Tetrahedron, cylinder, cone, sphere, pyramid.

Analytical Geometry.—Standard equations in rectangular coordinates straight line, circle, parabola, ellipse, hyperbola. Plotting of graphs.

$$y = \log^x \quad y = e^x.$$
$$Y = e^{-x}, \quad Y = e^{-x^2}.$$

Trigonometry.—Sin (A ± B) Cos (A ± B), tan (A ± B)
Sin A ± Sin B, Cos A ± Cos B.

Simple identities.—Relation between sides and angles of a triangle. Solution of triangles. Solution of simple Trigonometrical equations of the type of a Cos θ + b Sin $\theta = 0$. Complex numbers. Argand diagram. De. Moivre's Theorem and immediate applications. Series for Sin θ, Cos θ in powers of θ. Hyperbolic functions: Solution of the equation $X^n = a$.

Vector Analysis.—Vectors, Scalar and Vector products. Scalar Triple product. Vector Triple products. Illustrations. Equations to a line, plane and simple curves in vector notation.

(35-A & B)

Composite Course in Mathematics and Chemistry.

(35-A)

Composite Course in Mathematics (Ancillary.)

One paper of 3 hours' duration—75 marks.

To be taught in two years—2 hours per week.

In addition to the syllabus under basic mathematics in the Pre-University Course the following :—

Algebra.—Binomial theorem for a positive integer. Application of the Binomial theorem, Exponential and logarithmic series. Solutions of linear equations in 2 and 3 variables. Solutions of algebraic equations by graphical methods and by Newton's and Horner's methods. Probability, determinants.

Calculus.—Differentiation of x^n, Sin x, Cos x, e^x, log x, inverse functions. Differentiation of sum, product, quotient and simple function of a function. Differential co-efficient as a rate measurer. Successive differentiation. Simple examples of maxima, minima, tangents and normals. Curvature (without proof) of plane curves. Partial differentiation. Differentials, errors and approximations. Integration; standard integrals, Integration by simple substitution and by parts. Application of integration to find areas and volumes in simple cases. Differential equations of the first order; variables separable; homogenous type ; Linear type.

Geometry.—Elementary properties of triangles ; concurrence and collinearity. Simple solid figures. Solid angles. Tetrahedron.

Analytical Geometry.—Standard equation in rectangular coil ordinates; straight line, circle, parabola, ellipse, hyperbola, plotting of the following graphs.

y = log x; y = ex, y = e - x; y = e - x2

Trigonometry.—Addition and product formulae. Power series or sin x, cos x, $tan^{-1}x$.

(35-B)

Composite Course in Chemistry (Ancillary.)

Inorganic Chemistry.

Laws of Chemical combination, atomic and molecular theories; equivalent, atomic and molecular weights and their determination; valency; simple ideas of atomic structure and their relation to different types of valency and the periodicity of their properties.

Properties of carbonates, nitrates, sulphates, halides, silicates and different varieties of glass and steel.

Chemistry involved in inorganic qualitative and volumetric analysis.

Physical Chemistry.

Determination of molecular weights of gases and vapours ; Properties of solutions ; determination of molecular weight in solutions. Differences between colloidal and true solutions. Hydrogen ion concentration and its determination.

Chemical equilibrium and applications of the law of mass action. Solubility product. Simple treatment of the strengths of acids and bases. Effect of concentration, temperature and catalysts on rate of reaction. Exothermic and endothermic reactions. Heat of solution; heat of neutralisation.

Organic Chemistry.

Empirical and molecular formulae; Homologous series. Aliphatic hydrocarbons and their derivatives—alcohols, aldehydes ketones, alkyl halides, nitro-alkanes and ethers.

Saturated and unsaturated fatty acids; esters; dibasic acids—oxalic, malonic and succinic acids; simple aliphatic amino acids. Glucose, fructose; Benzene, toluene, xylene, and their simple derivatives. Geometrical and optical isomerism.

Practicals.

1. Qualitative analysis of a simple salt (2 radicals).

2. Volumetric analysis involving solutions of acids and alkalis, potassium permanganate, sodium thiosulphate, iodine, arsenious oxide, silvernitrate, potassium thiocyanate (about 20 experiments).

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Chemistry (Ancillary)

General and Physical

Laws of chemical combination. Dalton's atomic theory. Avogadro's hypothesis. Atoms and molecules. Combining weight, atomic weight and molecular weight.

Gas laws : Boyle's, Charles's, Dalton's, Graham's. General gas equation. Kinetic theory. Imperfections in gas behaviour. Van der Waals equation of state (derivation not expected). Liquifaction of gases. Critical constants. Liquids, vapour pressure, boiling point. Solutions of solids, liquids and gases in liquids. Determination of solubility and solubility curve. Significance of solubility curves. Henry's law. Supersaturation.

Determination of molecular, equivalent and atomic weights :

(*a*) Molecular weights—(i) From densities of gases and vapours. Method of limiting density. Regnault, Dumas, Victor Meyer and Hoffman methods. Abnormal vapour densities. Dissociation. (ii) From Graham's law of diffusion. (iii) From osmotic pressure, cryoscopic and ebullioscopic methods (Raoults' law). Abnormal molecular weights.

(*b*) Equivalent weights. Determination of equivalent weights.

(*c*) Atomic weights—Methods of Cannizzaro, Dulong and Petit Mitscherlich.

The structure of the atom. Valency : Classical and electronic theories

Classification of elements. Metals, non-metals and metalloids. Classification by Dobereiner, Newlands, Mendeleff and Lothar Meyer. Modifications.

Exothermic and endothermic reactions. Heats of solution and neutralisation. Reversible reactions and the Law of mass action. Verification of the law in simple systems: application to hydriodic acid, phosphorus pentachloride and dinitrogen tetroxide.

Catalysis. Haber and contact processes. Electrolysis and its applications. Faraday's laws and applications. Theory of electrolytic dissociation. Equivalent and molecular conductivities. Degree of dissociation. Acids, bases and salts. Hydrogen ion concentration.

Colloids—preparation and properties.

Inorganic Chemistry.

Oxygen.—Preparation, manufacture, properties and uses. Oxides and their classification.

Hydrogen.—Preparation, manufacture, properties and uses. Heavy hydrogen.

Water.—Hard and soft waters, methods of softening. Composition by weight and by volume. Hydrates, efflourescence and deliquescence.

Ozone and Hydrogen-peroxide.—Preparation, properties and uses. Oxidation and reduction. Formulae.

Halogens.—Comparative study of fluorine, chlorine, bromine, iodine and their hydrides. Oxides and oxy-acids of the halogens and their salts. Bleaching powder. Chlorate, bromate and iodate of potassium. Potassium perchlorate.

Sulphur.—Extraction, allotropic modifications. Hydrogen sulphide. Metallic sulphides, their solubilities and application in qualitative analysis.

Sulphurous, sulphuric, thiosulphuric acid and their salts.

Nitrogen.—The composition of the atmosphere. Preparation and properties of nitrogen, oxides of nitrogen, nitrous acid and nitric acid. Action of nitric acid on metals and non-metals.

Phosphorus.—Extraction, allotropic modifications, uses. Phosphine. Chlorides, oxides; phosphorous and phosphoric acids.

Arsenic, antimony and bismuth.—Comparison; oxides, hydrides, chlorides and sulphides. Arsenites and arsenates.

Carbon.—Allotropic forms, carbon monoxide, carbon dioxide, carbon disulphide, phosgene. Carbonates and bicarbonates.

Boron and Silicon.—Boric acid, sodium borate, boron trifluoride. Silicon dioxide, silicic acid and silicon tetrafluoride. Alkali silicates.

A study of the following metals from the standpoint of the periodic table: Na, K, Mg, Ca, Ba, Sr, Zn, Cd, Hg, Al, Sn, Pb, Cu, Ag, Cr. Mn, Fe, Co, Ni. A general outline of the preparation of the metals from their oxides, hydroxides and sulphides. Oxides, hydroxides, carbonates, chlorides, nitrates, sulphides and sulphates of metals.

Organic Chemistry.

Purification of organic compounds. Detection and estimation of carbon, hydrogen, nitrogen, chlorine and sulphur. Empirical and molecular formulae. Paraffin hydrocarbons upto pentane. Homologous series. Polyhalogen derivatives of methane, ethane,

Alcohols upto butyl alcohols. Ethers. Aldehydes and ketones. A comparative study of acids upto butyric acids. Chlor-acetic acids. Acid chlorides, anhydrides, amides and esters. Nitro-methane, ethyl nitrite and dimethyl sulphate. Primary, secondary, tertiary amines. Quaternary salts. Dibasic acids upto succinic acid. Lactic and tartaric acids. Optical isomerism. Fumaric and maleic acids. Geometrical isomerism. Glycol and glycerol. Glucose, fructose, cane-sugar-properties, reactions and methods of differentiation.

Benzene, toluene and naphthalene. Chlorination, nitration and sulphonation of benzene and toluene. Benzaldehyde, benzoic acid and derivatives of benzoic acid. Aniline, diazotisation and reactions of diazonium salts. Acetophenone, benzophenone. Benzyl alcohol, phenol, anisol, picric acid and salicylic acid. Phthalic acid, phthalimide and phenolphthaen.

Practical.

Qualitative analysis of a simple salt. The following exercises in volumetric analysis :—(The students should do their own weighings).

1. Standardisation of an acid against sodium carbonate.
2. Standardisation of alkali against oxalic acid.
3. Standardisation of potassium permanganate.
4. Standardisation of thiosulphate against dichromate.
5. Estimation of ferric and ferrous iron (external indicator).
6. Estimation of copper or a solution of a copper salt.
7. Estimation of silver nitrate against sodium chloride.

Books recommended for reference :

Prescott—Intermediate Chemistry (U.T.P.)
Lowry and Cavell Intermediate Chemistry (Macmillan).
Holmyard—Inorganic Chemistry (Arnold).
Holmyard—Organic Chemistry (Arnold).
Philbrick—Inorganic Chemistry (Bell).
Durrant—General & Inorganic Chemistry (Longmans).
Durrant—Organic Chemistry (Longmans).

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Geology.

(Ancillary.)

Introduction :—The scope and sub-divisions of Geology.

General Geology :—

The earth as a planet and its relation to the other members of the solar family.

The hypothesis of the origin of the earth.

The size and form of the earth, the interior of the earth; the physical zones of the earth. The atmosphere, the hydrosphere and lithosphere.

Land and Sea : Distribution by surface extent; heights and depths; the continental shelf.

Planetary circulation : Rotational deflection; sea breezes; monsoons and rainfall.

Oceanic circulation : Causes and effects; waves and tides. Geological Agents.

(*a*) Epigene agents; atmosphere, oceans, rivers, glaciers and their work.

(*b*) Hypogene agents: Volcanoes, earthquakes, their causes and effects.

Age of the earth, Marine transgression and regressions. Raised beaches. River terraces and Origin of coral reefs.

Palaeontology :—Introduction : Fossils, their mode of formation ; their value in Geological and Biological Sciences, tables of the divisions of Geological time.

(1) Zoological characters and chief divisions of Protozoa—Fossils—textularia, fusulina and nummulites.

(2) Zoological characters of the Porifera. Canal system of the sponges—Ventriculites.

(3) General characters of the Graptolites—monograptus, diplograptus.

(4) General characters and divisions of the Coelenterata—corals—cyathophyllum, zaphrentis, calceola, thecosmilia, favosites, halysites, lithostrotion.

(5) General characters of Echinodermata—echinoderms—cidaris micraster, holaster, encrinus and pentremites.

(6) General characters of Brachiopoda and brachiopod shell. Fossils—lingula, productus, pentamerus, spirifer, rhynconella and terebratula.

(7) General characters of the Lamellibranchiata and lemellibranch shell—Fossils—arca, inoceramus, pecten, ostrea, gryphea, alectryonia, pectunucleus, hippurites, spondylus, unio, cardita and trigonia.

(8) General characters of the Gasteropods and gasteropod shell —Fossils—Bellerophon, natica, turritella, cerithium, murex, fusus, conus, voluta and physa.

(9) General characters of the Cephalopods, Nautiloidea and ammonoidea—Fossils—belemnites, nautilus, goniaitites, orthoceras, ceratites, scholenbachia.

(10) General characters of the Trilobita—Fossils—Calymene, paradoxides, phacops, trinucleus.

(11) Plant fossils—glossopteris, gangamopteris, ptilophyllum, calamites and lepidodendron.

Structural and Field Geology and Stratigraphy :—Order of superposition, conformable and uncomformable beds, overlaps, lithology and fossils correlation ; facies ; division of rocks into groups, system, etc., and geological time into era, epoch, etc.

Dip, strike and outcrop ; variations in outcrops with reference to dip of bed and slope of valleys ; types of unconformity ; folds, synclines, anticlines, overfolds and fanstructure. Faults, normal and reverse faults, inliers and outliers.

A course of lectures to give a comprehensive general outline of Indian Stratigraphy.

Crystallography: Definition of a crystal, crystalline and amorphous external form, variation of form and surface, law of constancy of interfacial angles, symmetry—planes, axes and centre, axial ratio, parameters, indices, symbol, Weiss and Miller, law of rationality of indices, hemihedrism and hemimorphism.

The six normal classes, the pyritohedral class, the tetrahedral class, the tetragonal sphenoidal class, the rhombohedral class, the rhombohedral hemimorphic, the trigonal trapezohedral class and their forms.

Mineralogy : Physical—crystalline aggregates, columnar and fibrous structure, lamellar structure, granular structure, imitative shapes and pseudomorphs.

Cleavage, parting, percussion figures, fracture, hardness, tenacity, sp. gr. and its determination.

Isomorphous mixture, isomorphous replacement, dimorphism, sodimorphism and pseudomorphs.

Minerals : Quartz, and the more important varieties, feldspars, orthoclase, microcline, plagioclases, hypersthene, enstatite and augite, hornblende, actinolite and termolite—micas, tourmaline, topaz, flurite, natrolite, stilbite.

Olivine, garnet, nephelin, eleucite, sodalite, beryl, epidote, staurolita, kyanite, apatite, talc, chlorite, serpentine (asbestos), kaolin, bauxite, calcite, dolomite, siderite, magnesite, selenite, gypsum, baryte, celestite, anhydrite, corundum, diamond and graphite.

Ores : Magnetite, haematite, limonite, ochre, Ilmenite, chromite, pyrite, chalcopyrite, galena, sphalerite, pyrolusite, psilomelane, malachite, azurite, graphite, gold, silver, halite and zircon.

Petrology :—Igneous rocks ; their distinguishing characters, intrusive modes of occurrence—dike, sheet, laccolith, neck, stock, batholith, and lava flows. Textures and structures for megascopic study ; jointing in rocks.

Principles of classification, megascopic classification.

Description of rock types ; Granite, syenite, diorite, gabbro, norite, Peridotite, pyroxenite, amphibolite, porphyry, dolerite, rhyolite, trachyte, andesite and basalt.

Metamorphic Rocks : Metamorphic agencies and kinds of metamorphism. Texture in metamorphic rocks.

Rock types : gneiss, slate, schist, phyllite, marble and serpentine.

Sedimentary Rocks : Classification into mechanically formed, chemically formed and organically formed rocks.

Mechanically formed :—Soil, blown sand, grit, sand-stone, clays, boulder clay.

Chemically formed :—Tufa, dolomite, rock salt, gypsum, flint and ironstones.

Organically formed :—Limestones, carbonaceous rocks and coprolites.

Practical work will comprise of the following :—

A study of the more important crystal models : The fossil type mentioned—megascopic study of the minerals and rocks.

Exercises in plotting of outcrops on contour maps. Reading for maps relating to beds with thickness, unconformities, simple folds and an acquaintance with strike and dip faults.

Sketch maps of the following : Physiographical features of India, Dharwar rocks of South India, Cuddapah and Vindhyan systems, Gondwana system, Cretaceous of Peninsular India and Deccan trap.

Books recommended for Study :—

Text-book of Geology : Longwell, Knopf and Flint, John Wiley.

Geology : Principles and processes—Emmons and others.

Introduction to Geology: Bailey, Weir and others, Macmillan & Co.

Woods : Palaeontology.

Dr. M. S. Krishnan : Introduction to the Geology of India, The Madras Law Journal Office, Madras.

Reference :—

Physical Geography of India for Indian students : C. S. Fox, Macmillan & Co.

Statistics

(Ancillary to Physics)

Syllabus—Same as for Group-B under Branch I, *vide* No. 28.

FOR BRANCH IV—CHEMISTRY.

(35-A & 35-C)

I. Composite Course in Mathematics and Physics.

For Syllabus in Composite Mathematics—Same as for Group-B—under Branch III, *vide* No. 35-A.

(35-C)

Syllabus in Composite Physics.

One paper of 3 hours' duration and one practical test of 3 hours' duration.

Mechanics.

Measurements.—Units and dimensions. Vernier, screw gauge. Common balance.

Linear motion.—Definitions of velocity, acceleration, force, momentum impulse.

Equations of motion.—Newton's laws of motion. Conservation of momentum. Work. Power and energy. Conservation of energy (Statements and simple illustrative problems only)

Relative velocity.—Composition of vectors. Simple problems on relative velocity.

Circular motion —Normal acceleration, angular momentum, kinetic energy of rotation, moment of inertia (explanation of simple cases only)

Simple harmonic motion.—Definition and calculation of energy of simple harmonic motion. Simple pendulum.

Pressure and thrust.—Definition and principles of Archimedes. Laws of flotation from pressure idea.

Determination of specific gravity by different methods.

PROPERTIES OF MATTER.

Gravitation : Laws of gravitation. Newtonian constant. Variation of acceleration due to gravity.

Viscosity : Definition. Smooth and turbulent motion. Rate of flow of liquid in capillary tube. Viscometers. Stoke's method. Surface tension: Definition. Surface energy. Capillary rise. Formation of drops. Quincke's method. Vapour pressure over curved surfaces and condensation conditions.

HEAT

Thermometry : General methods. One thermometer of each type. Specific heats: Solids and liquids ; mixtures. Bunsen's method. Difference of Cp and Cy. Determination of these. Conduction and Radiation. Thermal conductivity. Properties of thermal radiations. Prevost's theory. Kirchoff's law. Stefan's Law. Newton's law. Solar radiation. Temperature of sun.

OPTICS.

Geometrical optics: Laws of reflection and refraction. Refractive index. Refraction through prisms. Direct vision spectroscope. Lenses, Expression for the focal length in terms of refractive index. Thin prisms. Achromatism in lenses. Spectrometer. Constant deviation prism.

Interference of light : Physical concept. Biprism. Colours of thin films. Newton's rings. Interferometers. Expansion of crystals.

Diffraction : Interference of diffracted rays. The grating. Dispersion and resolution in grating.

Polarisation : Explanation of plane polarisation. Double refraction. Nicol. Rotation of plane of polarisation. Elliptically and circularly polarised light. Polaroid. Spectroscopy : Modes of excitation. Types of spectra and Explanation. Doppler effect and optical applications.

Magnetism

Fundamental phenomena. Ewing's theory. Dipole. Pole strength. Moments. Intensity. Potential from poles and dipoles. Shell. Cycles of magnetisation. Permeability and susceptibility. Para and Diamagnetism. Explanation of these. Curie point. Curie and Gouy methods. Hysteresis.

Electricity.

Electrostatics : Electrification ; Definitions. Gauss theorem. Condensers of various types. Electrometers.

Magnetic effects : Rules. Em. and E. S. units. Relation between these. Deat beat and ballistic galvanometers. Electromagnetic induction : Laws of Faraday and Lenz. Mutual and self induction. Dynamo, motor, induction coil, transformer rectifier.

Alternating Current : Current in L-R circuits. Choke. Oscillating L-C-R. Circuits. Electromagnetic waves ; production and reception by crystal and valve circuits.

Electrical Measurements : Potentiometer, meter bridge, Carey Foster, P.O. Box. Ammeters and voltmeters for D. C. Ammeter for A.C.

Thermoelectricity : Peltier and Thomson Effects. Practical applications.

X-rays : Production, properties and uses—Elucidation of crystal structure by X-rays.

Photo electric cell and its applications.

Radioactivity, Nuclear disintegration, protons, neutrons, positions, electrons, nuclear fission.

SYLLABUS IN PHYSICS PRACTICAL (ONE EXAMINATION OF 3 HOURS).

1. Balance. Sensibility. True weight of body using rider.
2. Density of powders and of liquids using density bottle.
3. Surface tension by capillary rise.
4. Viscosity by capillary flow.
5. Latent heat of ice.
6. Conductivity—Searle's method.
7. Focal length of concave and convex mirrors.
8. Focal length of concave and convex lenses.

9. Refractive index of liquid by total internal reflection.
10. Spectrometer—Refractive index of a solid.
11. Spectrometer—Refractive index of a liquid.
12. Spectrometer—Dispersive power of a prism.
13. Spectrometer—Wave length by transmission grating (normal incidence).
14. Magnifying power—Telescope and Microscope.
15. Newton's rings by reflected light.
16. Polarimeter.
17. Resistance by meter bridge and P.O. Box.
18. Potentiometer—E.M.F. and internal resistance.
19. Potentiometer—Calibration of an ammeter.
20. Potentiometer—Measurement of resistance.
21. Current by copper voltameter.
22. J with Joules calorimeter.

Books Recommended for Reference :—

1. Intermediate Physics—C. J. Smith (Arnold).
2. A Course of Physics—H. A. Perkins (Blackie).
3. Analytical and Experimental Physics—Lamon and France (University of Chicago Press).
4. A Laboratory Manual of Physics for Intermediate : Taylor (Arnold).
5. Practical Physics—K. S. Venkatesan.
6. Text-books of Physics—J. Duncan and S. G. Starling (Macmillan).
7. Elements of Physics—A. W. Smith (McGraw Hill).

Mathematics (*Ancillary*)

Vide Syllabus No. 34.

Physics (*Ancillary*)

Vide Syllabus No. 29.

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Botany

(*Ancillary Group-B*)

1. The structure and life-history of the following :—

Bacteria, Oscillatoria, Nostoc, Chlamydomonas, Pandorina, Eudorina, Pleodorina, Volvox, Ulothrix, Oedogonium, Spi-

rogyra, Ectocarpus, Polysiphonia, Nitella, Rhizopus, Yeast, Penicillium, Puccinia, Agaricus, Usnea, Riccia, Funaria, Selaginella, Lycopodium, Lastrea, Cycas.

2. External morphology of flowering plants in general and a systematic study of the following natural orders together with the economic importance of those marked in asterisks :—

Anonaceae, Nymphaeaceae, *Leguminosae, *Malvaceae, *Rutaceae, Myrtaceae, *Cucurbitaceae, *Rubiaceae, Compositae, Apocynaceae, Asclepiadaceae, Convolvulaceae, *Solanaceae, Acanthaceae, Labiatae, Amarantaceae, *Euphorbiaceae, Urticaceae, Liliaceae, *Scitamineae, Orchidaceae, *Palmae, *Gramineae.

3. Plant Physiology :—

Chemical composition of the plant. Soil and its nature, absorption of water and inorganic nutrients, osmosis, plasmolysis. Transpiration and factors affecting transpiration. Photosynthesis. Special methods of nutrition (heterotrophism—parasitism, saprophytism, bacterial symbiosis, carnivory). Respiration. Growth and movement—Geotropism, Phototropism and Hydrotropism.

4. Histology :—

Cell and its parts. Mitosis and meiosis. Meristem, primary and secondary tissues and their distribution in the angiospermous plant body (excluding anomalous types). Structure and development of the anther, development of male gametophyte. Structure and development of the ovule and the female gametophyte. Fertilization. Parts of the typical dicotyledonous and monocotyledonous embryo.

5. Ecology :—

Chief external and internal and physiological features of Xerophytes, Mesophytes and Hydrophytes with examples from local flora.

6. General principles :—

Evolution and Heredity.

A short account of the work of Lamarck, Darwin and de Vries Heredity—Mendel's Laws of Inheritance, Monohybrid ratio.

7. Practical work :—

Candidates are expected to be able to make preparations illustrating the form and structure of any plant of the orders or

groups mentioned in the syllabus and to describe them with sketches sufficient for their identification ; to make dissection with the simple microscope of the floral parts of Phanerogams included in their syllabus and to make drawings, construct floral diagrams and refer them to their natural orders ; to describe in technical language plants belonging to any of the orders of groups specified in the syllabus and to describe simple setups of physiological experiments. To make, stain, mount and examine through the compound microscope and identify preparations of plant material belonging to paragraphs 1, 4 and 5. At the practical examination each candidate must submit his laboratory note-book. The practical examination will be of three hours' duration.

Books recommended :

For study :

(1) Text-book of Botany by Lowson, Howarth and Warne—Oxford University Press.

(2) Plant Kingdom by Brown—Ginn & Co., New York.

(3) Structural Botany by Scott & Brooks, Volumes I and II—Macmillan & Co.

(4) A Text-book of General Botany by Smith etc.—Macmillan & Co.

(5) Introduction to Botany by Haupt—McGraw Hill.

(6) Hand-book of Botany by Rangachary, Sekhar & Sarathy. P. Varadachari & Co.

Reference :

(1) Cryptogamic Botany by G. M. Smith—Vols. I and II—McGraw Hill.

(2) Text-book of Botany—Vols. I to III by Coulter, Barnes and Cowles.

(3) Plant Anatomy by Eames and McDaniels—McGraw Hill.

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Zoology

(Ancillary Group-B.)

1. *Invertebrata*: A study of the following animal forms as illustrative of the main characteristics of the groups to which they belong.

Amoeba, Euglena, Paramecium, Plasmodium, Hydra, Obelia, Aurelia, Parasitic worms (Liverfluke, Tape worms and Round worms), Earthworm, Leech, Prawn, Crab, Centipede, Millepede, Cockroach, Scorpion, Freshwater mussel, Pila, Sepia and Star-fish.

2. *Chordata*: A general survey of the chordata and the evolution of Vertebrate organs and organ systems with the anatomy of Frog as the basis of comparison.

3. *Embryology:* A broad outline knowledge of the development of the Frog, the Chick and the Rabbit.

4. *General Principles*: A basic knowledge of Evolution and Heredity.

PRACTICAL

Candidates will be required to identify and describe specimens and preparations relating to the types mentioned above. They will be required to dissect and make simple microscopic preparations of Earthworm, Cockroach, Fresh-water mussel, Frog, Calotes, Pigeon and Rat.

Dissections of the nerves will be expected only in the case of Earthworm, Cockroach and Frog. External characters alone to be studied in the case of Prawn, Pila and scorpion. Practical record note-books must be submitted for valuation at the University Examination.

Geology

(*Ancillary*)

Vide Syllabus No. 37.

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PHYSIOLOGY—ANCILLARY

Protoplasm—Cells and tissues of the body—cell division—Properties and functions of cell membrane ; cell permeability—diffusion, osmosis.

Atomic weights—Molecules—Equivalent weights—oxidation and reduction—Acids, bases and salts—crystalloids and colloids.

Blood—Compositions and functions—Red Blood corpuscles—Haemoglobin—factors responsible for anaemias—

Blood groups ; blood transfusion—

Loucocytes—origin, functions, fate—

Blood platelets—clotting of blood—Blood forming organs—factors in blood formation.

Circulation of blood—Structure and working of the heart—Properties of cardiac muscle—Regulation of heart beat—Pulse—Velocity of blood—Blood pressure—Arteries, capillaries, veins.

Tissue fluid—formation, circulation, functions—lymphatic vessels and glands.

Urinary system—structure and functions of the kidney—acid-base balance in the body.

Skin—structure and functions—Regulation of body temperature—

Respiration—Respiratory mechanism—gaseous exchange in the lungs and tissues—Regulations of respiration—Transport of respiratory gases in the body.

Digestion—Essential food factors—structure of the different regions of the alimentary canal and the different digestic glands. Action of different enzymes on food taken in—Movements of the alimentary canal—Absorption and assimilation.

Nutrition—Food requirements of the body—Balanced diet—Composition of common foods of South India.

Endocrines—The functions of endocrine secretions with special reference to thyroid, pituitary and adrenals.

Nervous system—Parts of the nervous system and their functions treated in an elementary manner—Atomic Nervous system and its working—Reflex action.

Structure and functions of the sense organs—the eye, the ear, organs of smell, taste and cutaneous sensations.

Neuro-muscular system—Physical and chemical changes during muscular contractions ; fatigue ; work done by muscles.

Reproduction—The ovary—development of the graafian follocle—Development of the sperm—Fertilization, segmentation, Development of the embryo ; the foetus ; parturition.

Practical

Tissues—Examination of prepared slides of the different tissues of the body—Fresh mounts of a few tissues—

Preparation of a blood smear and how to stain it.

Blood count—use of haemocytometer to make a count of R.B.C. and W.B.C.

Estimation of haemoglobin with the haemometer.

Blood pressure determination.

Effect of stannuis ligature.

Recording the effect of temperature on heart beat ; stimulation of the vago sympathetic Histological study of the various organs studied in theory—

Salivary digestion—

Study of spinal frog—reflex action—

Human reflexes.

Recording pulse and temperature—Exercises demonstrating the effect of exercise on temperature and pulse.

Experiments with the muscle—nerve. Preparations from a frog—Recording.

1. A simple muscle twitch.
2. The effect of fatigue.
3. The effect of temperature.
4. The effect of " loading " and " after loading ".

BRANCH V—BOTANY

(*Ancillaries*)

1. Chemistry—*vide* Syllabus No. 36.
2. Zoology—*vide* Syllabus No. 39.
3. Geology—*vide* Syllabus No. 37.

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Zoology

(*Ancillary to Botany*)

Common with Branch IV—Chemistry.

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Geology

(*Ancillary to Botany*)

Syllabus same as for Group-B. Geology under Branch III.

BRANCH VI—ZOOLOGY

(*Ancillaries*)

(i) Chemistry—*vide* Syllabus No 36.

(ii) Botany—*vide* Syllabus No. 38.

(iii) Geology—*vide* Syllabus No. 37.

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(iv) Composite Ancillary Syllabus for Zoology.

A. *Quantitative methods in Biology.*—Measurement of variation—Probability—Standard error—Standard deviation—Chi—Square—co-efficient of variation—Correlation—relative growth (allometric).

B. *Physico-Chemical approach* to Biological processes:—

(*a*) Elementary composition of protoplasm. 2. pH—Indicators Buffers and determination of pH—Ionic concentration—Osmoregulation—3. Elementary knowledge of surface tension—viscosity—adsorption and properties of colloids.

(*b*) Properties—Classification—simple qualitative tests of carbohydrates—lipids and proteins.

(*c*) Utilisation of carbohydrates—lipids and proteins in the animal body—urea formation.

(*d*) Elements of bio-chemistry of muscle.

(*e*) Calcium and phosphorus metabolism in the animal body.

(*f*) Digestive enzymes—Respiratory pigments—hormones—demonstration of principal digestive enzymes.

C. *Geological approach.* (Historical)—Earth's crust—Fossilization, Fossil-bearing rocks—Geological eras—their climatic and other physical features and biological characteristics.

D. Some applications of physical principles in instruments of biological studies.

The compound microscope and its essential optical principles—The principle of illumination—Kohler's principle—uses of filters—dark ground illumination—polarising filters and polarising microscope—phase contrast microscope—principles of ultra-violet and electron microscope.

E. Physiology of respiration of plants and photosynthesis and nutrition—Trace elements in plants and animals. Plant pigments. Plant hormone. Yeast and fermentation. Organisational levels in the plant kingdoms. (Grades of plant organisation).

BRANCH VII—GEOLOGY.

(Ancillaries)

1. Composite Course in Mathematics and Physics.
2. Mathematics.
3. Physics.
4. Chemistry.
5. Botany.
6. Zoology.
7. Anthropology.
8. Archaeology.
9. Geography.

Syllabus.

1. Composite Course in Mathematics and Physics—Syllabus same as for Group-B—Composite Mathematics and Physics under Branch IV—*vide* Syllabus Nos. 34-A & 35-C.

(42)

Mathematics Ancillary to Geology.

Total lectures 60 (*for two years—One hour per week*)

In continuation of the syllabus under the basic mathematics adopted for the Pre-University Course, the following syllabus is recommended:

Plane Trigonometry :—Measurement of angles; trigonometrical functions and their relations to one another. Trigonometrical ratios of angles 0°, 30°, 45°, 60°, 90° (standard formulae for *Sin* $(a \pm \beta)$; *Cos* $(a \pm \beta)$, *tan* $(a \pm \beta)$; *cos* $a \pm$ *Cos* β ; *Sin* $(a \pm$ *Sin* $\beta)$; Solutions of triangles; application of logarithms to such solutions.

Spherical triangles :—Properties of spherical triangles; Congruency of spherical triangles. Right-angled triangles. Napier's formula. Solutions of spherical triangles using logarithms.

Calculus :—Graphical idea of a function. Idea of a limit (intuitive and not rigourous). Differential coefficient of a constant x_n (in positive integer), cos x, sin x. Derivative of the product of two functions, derivative of a simple function, Derivatives of second order.

Geometrical interpretation of the derivative. Gradient of a curve, equation of a tangent and normal.

Standard integrals. Simple definite integrals. Easy applications to areas and volumes of simple solids of revolutions, the generating curve not cutting the axis of revolution. (Candidates are not expected to do any complicated differentiation nor will they be expected to do any integration of functions other than simple Polynomials; a cos bx, a sin bx (a, b constants).

Analytical Geometry of two and three dimensions :—Cartesian rectangular co-ordinates of a point. Distance between two given points. Equation of a straight line (1) in terms of its slope and its intercept made on the y-axis, (2) passing through a given point and having a given slope, and (3) passing through two given points. Co-ordinates of the points of intersection of two straight lines. Conditions for parallelism and perpendicularity. Equation of a circle given centre and radius.

Standard forms of equations of parabola, ellipse, hyperbola and rectangular hyperbola.

Analytical geometry of three dimensions with Cartesian co-ordinates—Straight line and plane; standard forms of the equations of the sphere, cone and the ellipsoid.

3. *Physics Ancillary*

Syllabus same as for Group-B under Branch I—*vide* Syllabus No. 29.

5. *Botany Ancillary.*

Common with Branch IV—Chemistry *vide* Syllabus No. 38

6. *Zoology Ancillary.*

Common with Branch IV—Chemistry *vide* Syllabus No. 39.

7 *Anthropology Ancillary*—(Common with B.A. Syllabus.) Nos. 21. 22 & 25—B A.

(43)

Archaeology

(Ancillary for Geology Main)

PAPER I.

Early man and his cultures. Early man in Europe. Pithecanthe-ropus group; nanderthal group; Homo Sapieres group; Upper

Plustocere Homo sapieus in Europe; Jombc capede. Grimalde nugroids; Cro-magron; Magdaliriam and later man. Association of Human remains with industries in Europe. Their chronology.

Early man in Africa, Asia, Australia and America.

Dating the old stone age. The relative and absolute chronology of the Puistocere. The astronomical theory; duiclo chronology; various analysis.

Books recommended :—

Turner : Dating the Past.

A. V. M. Pradenne : Prehistory.

PAPER II.

Early man and stone age cultures of North-western India: Rhintocene sequence in the Punjab and the Narmada Valley.

Stone age man in South India: Paliolithic sites in the vicinity of Madras and Chingleput, North Arcot and Nellore districts. Implements in lauite deposits.

The metal age in India: Sequence of metal age cultures. Development of Pottery's types of the pre-historic pottery. Megalithic monuments in India; their type—distribution.

Books recommended :—

Stuart Piggot—Pre-historic India.

N. Ve Terra and J. J. Paterson—Studies in the Ice Age in India and Associated Human Cultures.

V. V. Krishnaswami—

Stone Age in India (Ancient India, No. 3, 1947).

9. *Ancillary Geography to Geology.*

***Paper I*—Physical Basis of Geography.**

***Paper II*—General Geography of India.**

(44)

Syllabus for Physical Basis of Geography

Geography Ancillary.

I. The Physical Basis of Geography—

(*a*) *The Atmosphere.*—Movements of air and water and the resulting types of weather and climate—insolation—distribution of land and water—horizontal and vertical distribution of temperature—atmospheric pressure and world winds—conditions of humidity and precipitation—storms. Local winds : their causes and effects on climate.

(*b*) *The Oceans.*—Area and depth—Continental shelf and slopes—deeps—distribution of salinity and temperature—movement of the ocean waves and tides—currents and their effects on climate—deposits—coral formations.

(*c*) *The Land.*—Materials of the earth's crust—earth sculpture—agencies of disintegration and reconstruction—work of moving water—development of river systems—underground water—snow and ice—work of wind as an agent of erosion, transport and deposition. Earth movements : volcanoes—lakes—shorelines—deltas and estuaries—factors affecting soil formation and distribution of soil types.

Syllabus for Regional Geography of India

The same as for Paper III(b) of B.A. Group A—*vide* Syllabus No. 34 (B.A.)

Practical Test:—

A. *Shape of the Earth*:

Determination of Position—Latitude and Longitude—Local time—Greenwich time and Indian Standard time.

Typical exercises:

(i) Determination of Latitude by Solar observation.

(ii) Determination of Longitude with reference to time.

B. *Field Mapping*:

(Elementary treatment only to be excepted). Use of Chain.

Prismatic Compass, Plane Table and Clinometer.

Candidates must be able to handle these instruments.

C. *Map-work*:

(i) Scales—Section drawing—Intervisibility—Enlargement and reduction.

(ii) Methods of representing relief and other physical features—Typical land forms, conventional signs and symbols.

(iii) Elementary study and interpretation of Survey of India Topographic Maps with special reference to the one-inch map.

D. *Cartographic Section*:

Diagrammatic and Cartographic methods of expression of Climatic, Economic and other Geographic data.

E. *Weather Recording Instruments*:—

Use of Thermometers including the Maximum and Minimum, Wet and Dry bulb—Rain gauge—Barometer—ordinary and Aneroid—Anemometer.

Rules for conducting the Practical Examination:

The candidates must submit their practical note-books at the Practical Examination.

The students to be required to answer three questions only.

The following text-books are recommended to indicate the standard of work required :—

Intermediate Geography.—L. Dudley Stamp (Longmans, Green & Co.)

The Indian Empire—L. Dudley Stamp (Longmans, Green & Co.)

Physical Geography—P. Lake (Cambridge University Press).

A Shorter Physical Geography—Emde Martonne (Christophers)

Physical Geography for Indian Students—Cyril S. Fox (Macmillan).

Map work and Practical Geography—J. Bygott (University Tutorial Press).

Systematic Geography, Part I—Willis (Philip).

A Systematic Regional Geography—Unstead (University of London Press).

Land Forms and Life—C. C. Carter (Christophers).

Foundations of Modern Geography, Books 1 to 3: Preece and Wood (Oxford University Press).

Cartography : Erwin Raisz (McGraw Hill Book Co.)

Intermediate Commercial Geography—Dudley Stamp, Part I.

For Reference:—

Oxford Advanced Atlas—Oxford University Press.

Phillip's University Atlas—Longmans.

Mathematical Geography-Vol. I—Jameson & Ormsby (Pittman)

The Continent of Asia—L. W. Lyde (Macmillan & Co.).

Earth Lore—Shand (Methuen).

A Key to Maps: Winterbotham (Blackie)

Exercises in Cartography:—Debenham (Blackie).

The following books in the Home University Library Series (Butterworth) are recommended for general reading:—

Modern Geography—Newbigin.

Commercial Geography—Newbigin.

Climate and Weather—Dickson.

Origin of the Earth—Gregory.

BRANCH VIII—GEOGRAPHY.

(*Ancillaries*)

1. Mathematics—*vide* Syllabus No. 42.
2. Physics—*vide* Syllabus No. 29.
3. Geology—*vide* Syllabus No. 37.
4. Chemistry—*vide* Syllabus No. 36.
5. Botany—*vide* Syllabus No. 38.
6. Zoology—*vide* Syllabus No. 39.
7. Statistics—*vide* Syllabus No. 28.
8. Astronomy—*vide* Syllabus No. 6.

PART IV

MINOR SUBJECTS

(For B.A.)

1. Physics.
2. Chemistry.
3. Biology.
4. Astronomy.
5. Statistics.
6. Geology.
7. Physical Geography.
8. Physical Anthropology.
9. Physiology.

(1) PHYSICS—MINOR.

Measurements of Time :

Reactive forces—recoil of a gun, working of jet planes.

Rocket propulsion.

Molecular structure of matter—Kinetic Theory.

Steam Engines and Outline of Internal Combustion Engines.

Microscopes and Telescopes.

Photography.

Spectra—Infra-red, visible and ultra-violet—Electromagnetic spectrum.

Ammeters, Voltmeters, Electromagnets.

Simple idea about A.C. and D.C.—Motors and Generators.

Illumination—Modern methods (including Fluorescent lamps, arcs, etc.).

Radio Television and Radar (fundamentals).

Sound Recording and Reproduction—Cinematography.

Atomic Structure, Radio-activity.

X-Rays—Properties and uses.

Nuclear energy and its application (only elementary ideas).

N.B.—*Standard of treatment to be as given in the Reference books given below :—*

1. Oxford Junior Encyclopaedia, Vols. III, VIII and IX.
2. Book of Popular Science (Grolier Society, New York), 10 Volumes.

3. A. M Low : Science and Industry
4. Prof. Peierles : Laws of Nature.
5. Odhams Press : Modern Science (Illustrated).

(2) CHEMISTRY—MINOR.

(30 *Lectures*).

Natural waters. Hard and soft water. Treatment of water for domestic and industrial uses.

Solid fuels : wood, coals. Liquid fuels : petroleum, power alcohol. Gaseous fuels : coal gas, producer gas, water gas.

Carbohydrates : Sugar, starch, cellulose, cotton, wood pulp, paper, rayon, mercerised cotton, celluloid.

Milk and milk products: bread, confectionery, beverages, food preservation, food colouring and flavouring materials.

Vitamins: anti-biotics, anti-septics, disinfectants, synthetic drugs.

Oils and fats: soaps and detergents.

Coal-tar and its important products : Dyes, Perfumes, Explosives, Plastics, Synthetic fibres.

Fertilisers: Glass, ceramics, cement.

Protective coatings for metals : Electro-plating, paints.

Wood Preservation.

(3) BIOLOGY—MINOR (BOTANY AND ZOOLOGY).

1. Outline study of the landmarks in the progress of biological knowledge, e.g., the invention of microscopes; Biogenesis and Pasteur's contribution ; Development of Evolutionary concept ; Mendel's work and development of science of heredity.

2. Organisms as causative agents of human diseases, such as worms, Entamoeba, malarial parasite, bacteria causing tuberculosis, cholera and dysentery and virus diseases causing small-pox, influenza, etc., immunity.

3. Role of micro-organisms in human welfare; nitrogen fixation; fermentation ; anti-biotics; bacteriophage.

4. Insect vectors and their relationships to man and plants.

5. X-ray and other radiations and their application to human welfare and progress. (The theoretical aspect of radiation may be done in the Physics section.)

6. Some aspects of human physiology, viz., the chemico-physiological properties of blood, muscle and their responses; nervous control of human actions ; Respiratory and excretory processes.

N.B.—The above may be covered in an elementary way in about 20 lectures.

(4) ASTRONOMY—MINOR.

One hour each week for one year—Roughly 30 *lectures.*

The Earth ; the Moon ; the Sun ; the Ecliptic. Measurement of time ; Zodaic ; the seasons and the Calendar ; Solar and Lunar eclipses ; the Sun and his family of Planets ; Kepler's laws ; Bode's law ; Planetary discoveries ; Neptune and Pluto ; the Stars ; visual magnitudes ; absolute magnitudes ; the 27 asterisms of Indian Astronomy. The important first magnitude stars among them.

(5) STATISTICS—MINOR

(No derivation of formula is contemplated).

Method of reasoning in scientific studies—Inductive and deductive processes. Observational data—Statistical method. Population and sample.

Diagrammatic representation. Computation of average mean, mediam and mode Measures of dispersion—Quartile deviation and Standard deviation.

Association of attributes and variables. Correlation and regression with the help of scatter diagram.

Sample Surveys

Books for Study and Reference :—

Tippet, L.H.C.: Statistics (Home University Library Series).
Morney : Facts from Figures.

(6) GEOLOGY—MINOR.

	Lectures.
The solar system, the origin of the earth.	2
Physical Geology :	
Atmosphere	
Surface features	
Distribution of land and sea	
Interior of the earth	4

	Lectures
Dynamical Geology :	
Geological action of wind, water and Ice	3
Mountain Building :	
Earthquakes, volcanism, the growth of continents and oceans	4
Historical Geology :	
Geological Time-scale	1
Plants and animals of the past	3
Petrology :	
Classification into igneous metamorphic and sedimentary rocks	3
Economic Geology :	
Search for mineral deposits and Engineering projects	2
An outline of the Mineral wealth of India	8
Coal and Petroleum	2

Lectures to be illustrated wherever possible with visual aids.

(7) GEOGRAPHY.

Syllabus same as for Group-B—Ancillary Geography—for B.Sc. —i.e., Physical Basis of Geography, *vide* Syllabus No. 44.

(8) PHYSICAL ANTHROPOLOGY.

PHYSICAL ANTHROPOLOGY—MINOR.

1. Physical Anthropology—Scope and definition.
2. Man's place among mammals as related to the geological history of the World and Evolution.
3. The order of Primates.
4. Elementary study of the comparative anatomy of man-like apes and man.
5. Ontogenic and Phylogenic Sequences
6. Fossil Primates and fossil men
7. The Quarternary Ice Age and emergence of man
8. Theories regarding the Cradle of man.
9. Race—Definition, classification — factors—blood groups—major racial groups and their distribution.
10. Studies of human heredity and Environment.

Books for study:—

1. Ashley Montague : Introduction to Physical Anthropology, Illinois, 1945.
2. E. P. Stibbe : An Introduction to Physical Anthropology, London, 1938.

Books for Reference:—

1. E. A. Hooton : Up from the Ape, New York, 1947.
2. A. C. Haddon : The Races of Man, New York, 1924.
3. G. Elliot Smith : Human History—London, 1934 (Revised Edition) Essays on the Evolution of Man.
4. A. Keith : Antiquity of Man.
5. R. R. Gates : Human Ancestry— Massachusetts, 1948.
6. M. R. Sahni : Man in Evolution.
7. W. E. Le Gros Clark: History of the Primates.
8. Julian Huxley : Evolution.

(9) PHYSIOLOGY.

Syllabus in Physiology.

The subject will be taught with special emphasis on applied aspects, Protoplasm, the Cell, the Tissues.

Composition of the Blood. The Red Blood Cells or Erythrocytes. The volume of the Blood. Haemoglobin. The White Cells or Leucocytes. Blood groups. The spleen. The Lymph, and the Lymphatic system. The Coagulation of Blood and Lymph.

General Desciiption of the Circulation System. The Arterial Blood Pressure. The arterial pulse. The structure and Physiological properties of Cordiac muscle. The Cardiac cycle.

Respiration : An outline of the structure of the Respiratory Organs. The Mechanics of Respirations. Asphyxia, Anoxia. Artificial Respiration. The sub-divisions of the Lung Air. The Chemistry of Respiration. The control of Respiration.

The Physiology of the Kidney ; Micturition.

Skin. Structure and functions. Regulation of temperature of the body. Digestion. Enzymes and their actions. Digestion in the Mouth. Digestion in the Stomach. Digestion in the Intestine. The production of Bile by the Liver. The Composition of the Bile and its functions. Absorption from the Intestinal Tract.

Principles of Dietetics and Elementary knowledge of Vitamins. The Endocrine Glands: An elementary knowledge of the thyroid gland. The parathyroid glands. The Adrenal glands. The Pituitary gland. The Sex glands.

The Central Nervous System: Reflex action. The spinal cord. The Brain. The Autonomic Nervous System.

The Physiology of Vision. The Ear.

The following experiments will be demonstrated to the students:—

Enumeration of White Blood Cells.

Enumeration of Red Blood Cells.

Haemoglobin Estimation.

Physiological Anatomy of the Mammalian Heart (Sheeps' heart) and Actions of Valves.

Inspection of the frog's in situ-graphic record of the heart-beat.

Effect of stimulation of the Bagus on the frog's heart.

Determination of vital capacity in man (Spirometry).

Recording of a simple muscle twitch (gastrenemics-sciatic preparation of frog).

Demonstration of reflex action in a spinal frog.

Demonstration of deep reflexes in man.

Text-book recommended :

'The Living Body' by C. H. Best and N.B. Taylor—Publishers—Henry Holt and Co., New York.

PART IV

MINOR SUBJECTS

(For B.Sc.)

1. History.
2. Politics.
3. Economics.
4. Commerce.
5. Geography.
6. Psychology.
7. Philosophy.
8. History of Fine Arts.
9. History of Music—Indian.
10. History of Music—Western.

(1) History—Minor.

History of Indian Culture (30 *lectures*):

1. Discovery of Ancient India.
2. The Culture of Vedic Aryans.
3. Social Life in Ancient India: Class–Family—Individual caste– system—The four stages of life.
4. Religion: Philosophy of the Upanishads–Buddhism–Jainism–Later Religious Teachers—Sankara, Ramanuja, Chaitanya—Bhakti Cult—Christianity in India.
5. Arts: Early Architecture—Stupa—Cave temples—Sculptural temples—Sculpture in stone and metal—The Dancing Siva—Paintings at Ajanta, Bagh, Sittannavasal, Sigiriya and Tanjore—India's dance and music.
6. Islam's Impact on India—Cultural influences—Muslim Architecture.
7. The Impact of the West on Modern India
8. India's contribution to World culture.

Books recommended:

1. The Legacy of India: Edited by Garrett (O.U.P.)
2. The Wonder that was India—Basham(Sidgwick and Jackson.)

(2) Politics—Minor.

Elements of Politics (30 *lectures*):

1. Beginnings of Government in Greece and Rome.
2. Emergence of the Modern State in Europe—Absolute monarchies.
3. Growth of Parliamentary Government.
4. French Revolution and Democracy in Europe.
5. Nationalism and Liberalism in 19th Century Europe.
6. Federalism in the United States of America.
7. National Self-Determination after World War I.
8. The Russian Revolution.
9. Fascism; Nazism; Communism.
10. United Nations Organization and International Government.
11. The Working Constitution of India.

Books Recommended:

Gettel: Political Science.

Palande: The Indian Constitution.

(3) Economics—Minor.

(1) Economics as a Social Science—Fundamental concepts—Economic goods—Utility—Value—Competition—Monopoly.

(2) Economic Organization—Capitalism, Socialism—Mixed Economy—Planning.

(3) The general laws of Supply and Demand—Determination of value under competition and monopoly.

(4) Money and its functions—Monetary standards—Inflation and Deflation—Effects of changes in prices.

(5) Banks and their functions—Credit instruments, cheques, bills of exchange, promissory notes.

(6) Exports and Imports—Balance of payments—Sources of Public revenue and items of expenditure.

Books Recommended :—

1. Dearle : Economics.
2. Lehfeldt : Descriptive Economics.

(4) Fundamentals of Commerce—Minor.

1. Commerce and its Economic Basis.

2. Kinds of Business Organisation—Sole Trader—Partnership and Joint Stock Companies—Formation, Management and Dissolution—Co-operative Organisation.

3. Instruments of Credit—Cheques, Promissory Notes and Bills of Exchange—Documents of Trade—Functions of Banks in relation to Commerce.

4. Customs and Excise Duties—Imports and Exports.

5. Formation of Contract—Offer, Acceptance, Revocation—Valid, void and voidable contracts—Conditions and Warranties—Performance and Breach—Sale of Goods—Agency.

6. Elements of Fire and Marine Insurance—Conditions and Warranties—Insurable Interest—Perils and Risks—Brokers and Underwriters—Subrogation—General and Particular Averages—Lloyd's Insurance.

Books Recommended :

Haney : Business Organisation.

Stephenson : Theory and Practice of Commerce.

Evelyn Thomas : Theory and Practice of Commerce.

B. V. Naidu and Datta : Business Organisation.

J. C. Mitra : Business Organisation.

A. Palmer : Company's Secretarial Practice.

O. R. Krishnaswami : Essentials of Commerce.

(5) Geography—Minor.

PRINCIPLES OF HUMAN GEOGRAPHY.

A. *Mode of Life :*

Effect of environment on Man, Culture and Civilisation. Cultural levels and contacts (12 hours).

B. *Distribution of Man :*

On the basis of race, culture, religion and actual numbers (8 hours).

C. *World Population Trends :*

Growth rates, movements, problems (10 hours).

Reference Books :—

Daryll Forde : Habitat, Economy and Society.

Huntington and Cushing : Principles of Human Geography.

Moodie : Human Geography.

(6) Psychology—Minor.

Fundamentals of Psychology:

1. Aim, Scope and Method of Psychology.
2. Importance of heredity and environment.
3. Intelligence: Its nature and measurement.
4. Learning: Remembering. Attentions.
5. Personality: Traits, types, measurement. The unconscious.
6. Animal Psychology: Trial and error learning. Condition ing insight. Motivation.
7. Child Psychology: Motor developments. Speech and play.
8. Adolescent Psychology: Adolescent interests and emotional instability.
9. Social Psychology: Crowd formation and leadership.
10. Abnormal Psychology: Types of mental disorders. Dreams. Psycho-analysis.
11. Industrial Psychology: Vocational Guidance. Fatigue and boredom. Accidents.

Reference Books:—

M. Collins and J. Drevers—Psychology and Practical Life. U.L.P.

Woodworth and Marquis—Psychology—A Study of Mental Life—Methuen, London.

(7) Philosophy—Minor.

1. Comparative Religion

or

2. Philosophical Foundations of Modern Science.

SYLLABUS IN COMPARATIVE RELIGION.

Under Humanities Minor for B.Sc. course (To be covered in 30 lectures)

1. Religion: Its nature and necessity. Religion and religions.

2. Founded (Historical religions) and religion not traced to a founder. Place of scripture in religion. The scriptures of the great religions.

3. Faith, Reason and Intuition: Their nature and function in religion.

4. Essential concepts of religion: God, Man and Nature. Inter-relation between them.

5. Man: His origin, nature and destiny. View of immortality and salvation.

6. God: Personal and impersonal. Transcendence and immanence. The Incarnation and the In-dweller.

7. The Problem of Evil: Punishment and redemption. Karma and Grace.

8. The Religious Predicament: Attitudes and practices. The place of ritual in religion. The devotee and devotion. Renunciation, prayer, fasting, pilgrimage, service, idea of surrender. Thirst for God.

9. Religion as Yoga (union with God): The perfected soul. Mystic experience.

10. Religion and Society: Religious basis of social service.

11. Features common to the several religions: Religion as instrument for peace.

Note: Stress is to be laid on the points of agreement on these topics in the main religions of the world, namely Hinduism, Islam, Christianity, Jainism and Buddhism. Where differences have to be brought out, there is to be no attempt to assess any religion as superior or inferior.

Bibliography:

1. A. C Bouquet: Comparative Religion (Pelican Books).
2. S. Radhakrishnan: East and West in Religion.
3. S. Radhakrishnan: The Hindu View of Life.
4. Kenneth W. Morgan: (Ed.) The Basic Beliefs of Hinduism (Y.M.C.A. Publishing House, Calcutta).
5. T. M. P. Mahadevan: Outlines of Hinduism.
6. Floyd H. Ross and Tynette Hills: Questions that Matter Most Asked by the World's Great Religions (Beacon Press, Boston, U.S.A.)

or

SYLLABUS IN PHILOSOPHICAL FOUNDATIONS OF MODERN SCIENCE

Under Humanities Minor for B.Sc. Courses (to be covered in 30 lectures).

I. What is Philosophy? What is Science? That the postulates of the sciences are the problems of Philosophy.

II. Physical Sciences: Their main concepts, methods and limitations.

III. Biological Sciences: Life and its evolution. Mechanism *vs.* Teleology.

IV. Social Sciences: Concept of mind. Individual and group behaviour. Place of values in social life. Values: Instrumental and intrinsic. Need for an integral study of man.

V. Philosophy of Evolution: A critical study—Emergence Transition from matter to spirit through life and mind.

VI. Relevance of Philosophy:

1. Difference between observation and explanation.
2. Need for critical examination of the assumptions and methodology of the sciences.
3. Fact and value: Values: moral, aesthetics and religious.
4. Extension of the frontiers of modern science into the realm of philosophy.
5. Philosophy as an attempt to unify and synthesise the findings of the sciences.

Bibliography:

1. E. P. Burtt: Philosophical Foundations of Modern Science.
2. Alexis Carrell: Man the Unknown.
3. Kenneth: Meaning and Purpose.
4. Cunningham: Problems of Philosophy.
5. Patrick: Introduction to Philosophy.
6. Joad: Philosophical Aspects of Modern Science.

(8) History of Fine Arts—Minor.

INTRODUCTION (2 hours).

History of Indian Art (20 hours): Proto-Historic Period: Indus Valley Civilization (1 hour) Historic Periods.

Architecture (7 hours): Stamba, Stupa, Chaitya Hall, Brahmanical Temple (Northern, Southern, Hoysala style), Indian Mosque and Islamic Tomb.

Sculpture (7 hours): Sunga and Early Andhra (Barhut, Bodh Gaya, Sanchi); Later Andhra (Amaravati); Gandhara; Mathura; Gupta; South Indian Bronzes.

Painting (5 hours): Ajanta; Moghul; Rajput.

History of World Art (18 hours):

1 hour. Egyptian Art: Architecture: The Pyramid. Sculpture: Some examples from the Old Kingdom.

2 hours. Greek Art: Architecture: The Orders. The Parthenon. Sculpture: Some examples especially from the 5th Century B.C.

1 hour. Roman Art: Architecture: Various types of Buildings. Sculpture: Portraits.

1 hour. Early Christian Art: Architecture: The Basilica.

1 hour. Byzantine Art: Architecture: The Hagia Sophia, Istambul. Minor Arts: The Mosaic.

1 hour. Romanesque Art: Architecture: S. Ambrogia, Milan.

2 hours. Gothic Art: Architecture. Sculpture: Minor Arts: Stained Glass. (Illustrated on the Cathedral of Chartres)

6 hours. Renaissance Art in Italy: General character and outlines of the Early Renaissance; Leonardo da Vinci, Michelangelo and Raffael.

2 hours. Renaissance Art in the Netherlands: Flemish Art: Van Eyck Brothers. Dutch Art: Renbrandt.

BIBLIOGRAPHY.

Indian Art:

B. Rowland: The Art and Architecture of India.

A. G. Rawlinson: K. de B. Cordington; J. V. S. Wilkinson: Indian Art.

P. Brown: Indian Architecture: Buddhist and Hindu Period, Islamic Period.

P. Brown: Indian Painting.

Chintamoni Kar: Classical Indian Sculpture.

Chintamoni Kar : Indian Metal Sculpture.

B. Gray : Rajput Painting.

J. V. S. Wilkinson : Mughal Painting.

O. Monod—Bruhl : Indian Temples.

" Mark " Vol. 2, No. 4 : Special Dipavali No. (contains good illustrations of Ajanta Wall-Paintings).

L. Bacchofer : Early Indian Sculpture, Vols. I and II.

Majumdar, Raychaudhuri, Kalikinkar Datta : Advanced History of India. (pp. 224-254 ; 378 ; 410-421 ; 584-601).

R. C Majumdar : History and Culture of the Indian People : Chapters on Art in the different volumes.

World Art :

H. Gardner : Art Through the Ages (3rd Edition).

H. Gardner : Understanding the Arts.

F. Ross : An Illustrated Handbook of Art History.

Banister Fletcher : A History of Architecture on the Comparative Method.

L. Hourtick : Encyclopaedia of Art, Vols. I and II.

(9) Syllabus for History of Indian Music (Minor)

History of Indian Music, ancient, mediaeval and modern Sources for the musical history of India.

History of Raga concept and Raga classification.

History and evolution of musical forms.

Origin and development of the five branches of manodharma sangita.

Evolution of the Veena. Causes for the disappearance of the Yazh.

Materials used in the construction of musical instruments of ancient, mediaeval and modern times.

Obsolete ragas, talas, musical forms, terms and instruments.

Evolution of concert programmes, Development of brindagana.

Seats of music in the past. Circumstances that occasioned famous musical compositions.

Evolution of the Opera and Dance-drama (Kuravanji and Bhagavatamela)

Lives and contributions of the following composers:

Purandaradasa; Narayana Tirtha; Thyagaraja ; Syama Sastri; Muthuswami Dikshitar; Arunachala Kavirayar; Swathi Tirunal; Gopalakrishna Bharathi.

Contemporary Music:

(Reference books to be the same as for B.A. Music Group; Diploma in Music and Sangita Siromani courses.)

(10) Musicology and History of Western Music—Minor—One Paper.

SYLLABUS.

1. *Staff Notations* : The Staff with treble and Bass Clefs, names and positions of notes, leger lines, the sharp, flat and natural, Accidentals, Notes and rests values, Time-Signatures, Dots and ties.

2. *Keys and Scales :* Key-Signature—Diatonic and Chromatic Scales, Major and Minor Scales, Harmonic and Melodic Scales.

3. *Intervals :* Simple Intervals—Perfect, major, minor intervals. Triads. Major and Minor Triads.

4. *Four-part Harmony :* The Four parts, Soprano, Alto, Tenor, Bass. Their compass.

5. Melody—Harmony—Polyphony—and Counterpoint—Their differences. Definitions only.

6. *Form and Style*: Difference between the two—Sonata as a whole. Chamber Music—Orchestra Music—Symphony—Concerto—Overture —Opera—Aria, Ballad Oratorio.

7. *Instrumentation :* An outline knowledge of the structure and the construction of the following instruments : Piano, Instruments of the Violin Family. Flute, Clarinet, Saxophone, Harmonium and Organ, Constitution of the Western Orchestra.

8. *History:* The beginnings of Western European Music. The early development of Counterpoint. Early Secular Music. The New Art and its Development—Vocal Music in the sixteenth and seventeenth centuries. The rise of instrumental Music. The age of Bach and Handel—The rise of Classicism. Developments in Opera—Beethoven —The Romantics and their music—Romantic Opera—Late Romantics and Nationalists—Impressionism and the Contemporary Scene.

9. *Biographies :* Bach—Beethoven—Mozrat—Handel—Haydn—Schumann.

Reference Books :—

Trinity College Text-Books Junior and Rudiments by Macpherson. Trinity College Text-Book, Intermediate, Chapters 1 and 3 only ; Senior, Chapter 11 only. The instruments of the Orchestra by E. Borland "Little Biographies" by F. H. Martens.

A Concise History of Music by William Lovelock.

Summary of the History and Development of the Mediaeval and Modern European Music by C. H. Parry.

Text-books and Syllabuses for B.A. and B.Sc. (Three-Year) Degree Examinations, 1959-60.

English.

B.A. and B.Sc.

PART I (*a*)—ENGLISH, 1959

(*Papers I to III*)

Shakespeare—

Twelfth Night.

King Lear.

Poetry—The following selections from "Leaves from English Poetry" (Orient Longmans) :—

Milton : Debate at Pandemonium.

Dryden : Song for St. Cecilia's day.

Wordsworth : French Revolution—

Wordsworth : Selections from the Prelude.

Coleridge : Kubla Khan.

Shelley : Ode to the West Wind.

Shelley : Ode to a Sky Lark.

Keats : Ode on a Grecian Urn.

Keats : Ode on Melancholy.

Keats : Ode on Indolence.

Keats : Ode to a Nightingale.

Fitzgerald : from Rubaiyat of Omar Khayyam.

Tennyson : The Lotus—Eaters.

Browning : A Grammarian's Funeral.

Arnold : The Scholar Gipsy.

T. S. Eliot : The Hollow Men.

Detailed Prose :—

(1) Living Voices (Ed. Sharma)—Blackie.

(2) Art of Life—Macmillan.

PART I (*b*)—ENGLISH, 1960.

(*Paper IV*).

Non-Detailed Reading—

(1) Hardy—Far from the Madding Crowd.

(2) Modern Stories (Ed. by Saxena) (Oxford University Press).

NOTE.—The examination in Shakespeare, Poetry and Prose (detailed) will be held in 1959 and in Composition (Non-detailed Prose) in 1960.

B.A.

PART III—BRANCH XII—ENGLISH.

Group A—Main.

1960.

(*a*) *Shakespeare*—

Richard III. The Tempest. (A general knowledge of the other plays of Shakespeare will be required.)

(*b*) *Drama*—

For Detailed Study—

Dr. Faustus (Marlowe).

St. Joan (Bernard Shaw).

For Non-detailed Reading—

Goldsmith : She stoops to Conquer.

Galsworthy : The First and the Last.

(*c*) *Prose*—

For Detailed Study—

Essays of Elia (First series).

Essays by Modern writers : Jepson (Longmans).

For Non-detailed Reading—

Even Harrington : Meredith.

Barchester Towers : Trollope.

(*d*) *Poetry*—

Wordsworth's 'Prelude'—Book I

and

The following selections from Standard English Poems (Ed. Young and K. R. Srinivasa Iyengar (O.U.P.)

Milton : L'Allegro and IL Penseroso.

Pope : Epistle to Arbuthnot.

Collins : Ode to Evening.

Browning : Childe Roland to the Dark Tower came.
The Last Ride Together.

Arnold : Dover Beach.

Yeats : The Tower.

Brooke : Menelaus and Helen ; Peace: Safety: The Dead: The Soldier.

Hodgson : The Song of Honour.

Lawrence : Snake.

NOTE.—A general knowledge of the other poems of Wordsworth will be required.

N.B.—In all the four papers, credit will be given for a good general knowledge of English Literature.

Group B—Ancillary.

1959.

1. *History of English Literature*—

Books recommended—

(1) Legouis—A Short History of English Literature.

(2) Compton—Rickett—A Short History of English Literature.

(3) Sampson, G.—A Concise History of English Literature.

(4) Hudson—An Introduction to the Study of Literature.

(5) Hudsor—Outline History of English Literature.

2. *Social History of England*—

Book recommended :

Trevelyan—English Social History.

Sanskrit

B.A. and B.Sc.

PART II (*a*)—SANSKRIT, 1959

(*Papers I and II*)

1. Kalidasa's Sakuntala.
2. Kalidasa's Meghadhuta (Whole).
3. Bharavi's Kiratarjuniya—Canto I only.
4. Dandin's Dasakumaracharita—Ucchvasas 2, 3 and 4 only.
5. Bhamaha's Kavyalankara—Chapters 1 to 3.

The allocation of text-books for the three papers shall be as follows :—

Paper I—

Sakuntala, Meghadhuta and Kirtarjunia

Paper II—

Dasakumaracharita and Translation from Sanskrit into English and English into Sanskrit.

40 Marks to be allotted for prose-text and 60 marks for translation.

PART II (*b*)—SANSKRIT, 1960

(*Paper III—At the end of the hird year course*)

Bhamahalankara—Poetics and History of Sanskrit literature; 50 marks to be allotted for each subject.

Text-books—

Macdonell; History of Sanskrit Literature, Chapters X to XIV.
Keith : Classical Sanskrit Literature—Heritage of India Series.

B.A.

PART III—BRANCH XII—SANSKRIT—SECTION A.

Examination for Papers I and II to be held in 1959.

Paper I—

Books of the later period I—

1. Bhavabhutis Uttaramacharita.
2. Bhoja's Campuramayana—Ayodhya Kanda only.
3. Harsha Charita—Ucchvasa 3.

Paper II—Ancient Indian History and Culture up to 1000 *A.D.*

Books recommended for study—

1. K. A. Neelakanta Sastri : History of India, Volume I.

2. Basham : The wonder that was India.

Copies can be had of Orient Longmans & Co., Madras-2.

Books recommended for consultation—

History and Culture of the Indian People, Bharathiya Vidhya Bhavan, Bombay. (Volumes 1 to 6.)

Examination for Papers III to VI to be held in 1960.

Paper III—

Books of the Early Period—

1. Macdonell : Vedic Reader : The following selections:—

Agni I. 1.

Savitri I. 35.

Maruts I.—85.

Visnu I. 153.

Funeral Hymn X. 14.

Pitaras X. 15.

Gambler X. 34.

Yama X. 135.

2. Aitareya-brahmana VII—3 and 4.

3. Kathopanishad—First Adhyaya—Text only.

4. Gautama Dharma Sutra—Text only—Chapters 1 to 9, Government Press, Mysore or Anandasrama Press, Poona.

Paper IV—

Books of the Later Period II—

1. Mahabharata—Vidura-niti—Prajagaraparva in Udyoga-parva—Chapters 33 to 40.

2. Patanjali's Mahabashya I-I-I.

3. Bhagavadgita—Chapters 1 to 6.

Paper V—

Comparative Philology with special reference to Sanskrit, according to the existing syllabus for Grammar (historical) under Part III Sanskrit and History of Sanskrit Literature—Vedic Period only.

Macdonell : History of Sanskrit Literature.

Winternitz : History of Indian Literature (Volume I).

Paper VI—

Elements of Poetics, Grammar and Indian Logic.

1. Dandin's Kavyadarsa—Pariccheda I.

2. Grammar—Varadaraja's Madhya Sidahantakaumudi—the Chapters on Samjna, Pancasandhi and Karaka only (Chowkhamba Book Depot, Benares).

3. Annambhatta's Tarkasangraha with Nyayabodhini.

Section B—Sanskrit.

Papers I and II, 1959.

1. Prescribed text-books—General—Paper I—

(i) Visvanatha Pancanana—Muktavali with Dinakari of Sabdakhanda.

(ii) Gauthama dharma Sutras—First nine Paricchedas.

(iii) Manusmriti—Chapter 9. Text only.

2. Prescribed text-books—General—Paper II—

(i) Siddhanthakaumudi—Purvardha only omitting Tadhita.

(ii) Rig Veda. Macdonell's Vedic Reader, I to X hymns (both inclusive)—Text only.

(iii) Kathopanishad—Text only.

Papers III to VI, 1960.

3. Prescribed text-books—General—Paper III—

(i) Jaiminiya Nyayamalavistara from the beginning to the end of Pada 3 in Chapter III.

(ii) Mimamsa Nyayaprakasa of Apodeva.

Special Part.

1. *Mimamsa*—

Paper I.

Taittiriya Samhita with Sayana's Bhasya, Khanda I, Prapathaka.

2. Apasthamba Srautha—Sutra with Rudradatta's Vritti—Prasnas I to V (both inclusive).

Paper II.

Bhatta Dipika from beginning to end of the third Pada of the third.

Adhyaya (Chapters I to III).

Aitreya Brahmana with Sayana Bhasya, fourth Panchika.

Paper III.

Bhatta Dipika from the fourth Pada of Chapter III.

3. *Nyaya*—

Paper I.

Gauthama's Nyaya sutras with Vatsyayanas Bhasya, Chapters I and II.

Kanada's Vaiseshika sutras, Text only.

Paper II.

Jagadisa's Panchalaksani and Simhavyaghri.

Gadadhara's Caturdasalaksani.

(*a*) From beginning up to the end of the Dvitiyasvalaksana.

(*b*) Kutaghatitalaksana.

(*c*) Kutaghatitalaksana.

(*d*) Vyadhikarana—Dharmavacchinanabhava—Khandanagrantha

Paper III.

Gadadhara's Paksata; SARVABHIMANTA.

Gadadhara's Siddhantalaksana (whole).

4. *Vyakarana*—

Paper I.

Paribhasandusekhara (whole).

Paper II.

Praudamanorama, Text from beginning to end of Avyayibhava.

Siddhantakaumudhi Krt and Taddhita Sections.

Paper III.

Sabdaratna from beginning to end of Stripraayaya.

5. *Sahitya*—

Paper I.

Bana's Kadambari from Mahasveta Vrttanta to the end of Purvardha.

Sri Harsha's Naisadha, cantos 10 and 11.

Kumarasambhava, cantos 1 to 5 (inclusive).

Nilakanthavijaya of Nilakantha Dikshitha, Uchvasa III only.

Paper II.

Sakuntala.

Malatimadhava.

Mrcchakatika.

Mudraraksasa.

Paper III.

Dandin's Kavyadarsa—Pariccheda I only.

Kuvalayananda (whole).

Siddhanthakaumudhi—Taddhitha—Apatyadhikara only.

Dhananjaya—Dasarupaka with Avaloka.

6. *Jyotisha*—

Paper I.

Bhaskara's Rijaganita.

Bhaskaracarya's Lilavati—whole, omitting Parkarmastaka, Kuttaka and Pasa.

Paper II.

Kshetramiti by Durgaprasada, Books III and IV only.

Trikonamiti.

Paper III.

Goplaprakasa. Capiyatrikonamiti and Golarekhaganita only.

7. *Ayurveda*—

Paper I.

Astangahrdaya, Sarira, Nidana and Cikitsa sthanas.

Paper II.

Carakasamita, Sutra and Sarira Sthanas.

Pratyaksa Sarira by Mahamahopadhyaya Gananath Sen.

Paper III.

Rasaratnasamuccaya, first eleven chapters.

Sanskrit.

B.A.

PART III.

Branch VIII—Indian Music (Main).

Ancillary Syllabus in Sanskrit, 1959.

(i) Kalidasa's Rahuvamsa, Canto XII.

(ii) Vikramarkacarita—Stories 1 to 4. Pages from about 25 to 40.

(iii) *Prosody*—

Elements of Sanskrit prosody—distinction into Matra, Vrtta and Gana Vrtta—The characteristics of the Vrttas—Anustubh Upajati, Vamsastha, Vasantatilaka, Malini, Sikharini, Mandakranta Sardula-vikridita, Sragdhara, Dandaka, Arya—Examples of the more musical metres: Campakamala, Dodhaka and Totaka, Bhujangaprayata, Mattamayura, Tunaka and Citra, Panca-Camara, Mattakrida, Tanvi, Kraunchapada. Consult: Vrttaratriakara, Sratabodha, Candomanjari.

(iv) 30 Sanskrit Musical Compositions—

I. Jayadeva—

(i) Pralayapayodhi jale—Introductory Dasavatra Astapadi.

(ii) Lalitalavanga—First Astapadi.

II. Narayanatirtha's Tarangas—

(iii) Govinda Ghayta—Bhairavi.

(iv) Puraya mama kamam—Bhilahari.

III. Sadasiva Brahmendra—

(v) Manasa Sancarare (Sama).

(vi) Bruhin Mukundeti.

(vii) Tunga tarange.

IV. Svati Tirunal—

(viii) Sarasijanabha myrare—Todi.

(ix) Sarasksa paripalaya—Pantuvarali.

(x) Kripaya palaya Saure—Carukesi.

(xi) Vande Sada Padmanabham—Navarasa Kannada.

V. Syama Sastri—

(xii) Kanaka Saila Viharini—Punnagavarali.

(xiii) Sankari Sam Kuru—Saveri.

VI. Snanasami Sastri—

(xiv) Sri Lalite—Bhairavi.

VII. Tyagaraja—

(xv) Girirajasutatanaya—Suddhabangala—Ganesa.

(xvi) Varasikhivahana—Supradipa—Subrahmanya.

(xvii) Nadatanumanisam—Cittaranjani—Siva.

(xviii) Samajavaragamana—Hindola—Krishna.

(xix) Sri Narada—Kanada—Narada.

(xx) Janakiramana—Sudhasimantini—Rama.

(xxi) Jayamangalam—Ghauta—Mangalam.

VII. Muttuswami Dikasitar—

(xxii) Siddhivinayakam—Cannara or Sanmukhapriya—Ganesa.

(xxiii) Vinapustakshidharini—Vegavahini—Saraswati.

(xxiv) Mahalakshmi karunarasalahari—Madhava Manohari (raga) Lakshmi.

(xxv) Sri Subramanya–Nyanamaste–Kambhoji–Subrahmanya.

(xxvi) Sri Parvatiparameswaran—Barali—Parveti and Parameswaran.

(xxvii) Sri Daksinamurte—Sankarabharana—Daksinamurthi.

(xxviii) Kamalabam bhajare—Kalyana—Devi.

(xxix) Suryamurte—Saurashtra—Sun.

(xxx) Mamava Pattabhiram—Maniranga—Rama.

Hindi

B.A. and B.Sc.

PART II (*a*)—HINDI, 1959.

(*Examination for Papers I & II*)

Paper I—Prescribed Text-Books I—Poetry—

Detailed Study :

1. B.A. Poetry Selection—1958—Published by the University of Madras.

2. Milan—Ram Naresh Tripathi.

3. Sudama Charit—Narottam Das.

Paper II—Prescribed Text-Books II—Prose and Drama—

Detailed Study—

1. Hindi Gadya Sanchaya—Mahairu Prasad (Publishers—Ram Narayan Lal, Allahabad.)

2. Raksha Bandhan—Hari Krishna Premi.

3. Chaturyuga (One Act Plays)—Prabhat Shastri (Kaushambi Prakasham Darakanj, Allahabad.)

For reference only—

1. Hindi Bhasha Aur Sahitya by Udai Narayan Tiwari.

2. Kavya Pradeep—Ram Bahori Shukla. (Only those Alankaras and Chandas as per Syllabus).

3. Vyakaran Pradeep—Ram Deo.

PART II (*b*)—HINDI, 1960

(*Examination for Paper III*)

Paper III—

Non-detailed Texts—

1. Nirmala—Prem Chand.

2. Katha Kaumudi—Dakshina Bharat Hindi Prachar Sabha, Madras.

For reference only—

1. Vigyan Ke Chamatkar—by Bhagwatiprasad Şrivastava (Published by Gyan Mandal, Ltd., Kashi).

2. Nibandh Prabodh by Dr. Ram Ratna Bhatnagar (Published by Kitab Mahal, Allahabad).

B.A.

PART III—BRANCH XII—HINDI.

(*Examination for Papers I and II to be held in* 1959)

Paper I—

History of Hindi Literature—

1. Hindi Sahitya Ka Itikas—by Dr. Ram Kumar Verma. (R. N. Lal).
2. Hindi Kavya Vimarsh—by Sri Gulab Rai.
3. Hindi Bhasha aur Sahitya—by Shyam Sundar Das.
4. Hindi Sahitya Ka Itihas—by Pt. Ram Chandra Shukla.
5. Kavya Charcha—by Prof. Lalita Prasad Sukal.

Paper II—

Indian History and Culture—

1. Itihas Pravesh—Jaichandra Vidyalankar.
2. Bharateeya Sanskriti—Dr. Baldev Prasad Mishra.

For reference only—

1. History of India—K.A. Nilakanta Shastri.
2. The Legacy of India—Edited by Garret.
3. Bharateeya Sanskrit—Sri Ram Dhari Singh "Dinkar".
4. Bharatvarsh Ka Sankshipta Itihas—University of Madras

Examination for Papers III to VI to be held in 1960.

Paper III—

Prescribed Text Books—I (Poetry)—

1. Kavya Kalanidhi—Baugeeya Hindi Parishad, Calcutta.
2. Kavitavali (Omitting Uttar Kanda)—Tulasidas.
3. Gunjan—Sumitra Nandan. Pant.

Paper IV—

Prescribed Text-books—II (Prose and Drama)

1. Gadya Kusum Mala—Ram Narayan Lal & Co., Allahabad
2. Ajatshatru—Jai Shankar Prasad.
3. Gaban—Premchand.
4. Hindi Ki Amar Kahaniyan—Edited by Jagannath Prasad Sharma.
5. Reshmi Tie—Ram Kumar Verma.

Paper V—

Prosody and Poetics—

1. Kavya Pradeep—Ram Bahori Shukla.
2. Alankar manjoosha—Lala Bhagwan Deen.
3. Kavya Parichaya—by Chandra Shekar Shastri and Ram Chandra Sukla "Saras".

Paper VI—

History of Language and Grammar—

1. Hindi Bhasha Aur Sahitya—Shyam Sundar Das.
2. Vyakaran Pradeep—Ram Deo (Hindi Bhavan, Allahabad).
3. Sankshipta Hindi Vyakaran—Kamta Prasad Guru.

(*Note.*—All the papers shall be set and answered in Hindi.)

Marathi.

B.A. and B.Sc.

PART II (*a*)—MARATHI, 1959.

(*Papers I and II*)

Paper I—Poetry, History of Literature, Prosody and Poetics.

For Detailed Study.

Poetry—

1. Moropant—Virataparva.
2. Pacha Kavi—Edited by Rajadhyaksha.

History of Marathi Literature—Books recommended:

1. Maharashtra Saraswat (Chapters on Dyaneshwar, Woman by Bhave Pandit, Tukaram and Moropant).
2. Marathi Sahityachi Ruparesha by Dr. U. P. Dandekar.

Prosody and Poetics—Books recommended:

1. Alankara Chandrika by Gore, G. U.
2. Vrittadarapan by P. B. Codbole.

Paper II—(Prose, Drama and Grammar)

For Detailed Study.

Prose—

Marathi Nibandha by R. S. Walimbe.

Drama—

Punya Prabhava by Gadkari.

Grammar—

Book recommended—Praudhabodha Vyakaran, by R. B. Joshi.

PART II (*b*)—MARATHI, 1960

(*Paper III*)

Paper III—(Non-detailed text, passage or passages in English of translation into Marathi, General Composition having reference to modern thought)—

Non-detailed Text:

1. Daulat by N. S. Phadake.
2. Parijat—edited by V. S. Khandekar.

B.A.

PART III—BRANCH XII—MARATHI.

(*Examination for Papers I and II to be held in* 1959.)

Paper I—History of Marathi Literature—Books recommended:

1. Maharashtra Saraswat by Bhave.
2. Pradakshina—Edited by A. A. Kulkarni.
3. Arvachina Marathi Sahitya—Nene.
4. Marathi Sahityachi Ruparesha by Dr. U. P. Dandekar.

Paper II—History and Culture of Maharashtra:

Books recommended—

1. Maharashtracha Samskritic Itihasa by Dr. S. D. Pendre.

2. Marathi Riyasat by Sardesai.

3. Tirtharupa Maharashtra, Parts I and II by Mahadeshartri Joshi.

Examination for Papers III to VI to be held in 1960.

Paper III—Poetry (ancient and modern)—Prescribed Text-book I

1. Dyaneshwar, 12th Adhyaya.

2. Mukteshwar—Sabhaparva.

3. Keshavasuta—Keshana Sutanchi Kavita.

4. Tilak—Tilakanchi Kavita.

5. Bee—Phulanchi Orjala.

Paper IV—Prose and Drama—Prescribed Text-books II.

1. Adnyapatra—by Ramachandra Pant Amatya.

2. Amachya Deshachi Sthiti by Chiplonkar.

3. Nibandha Sangraha—Part I by Agarkar.

4. Vidyaharam by Uhadilkar.

5. Ekach Pyala—Gadkari.

Paper V—Prosody and Poetics—Books recommended:

1. Chandraihana by Patmardhan.

2. Abhinana Kavyaprahash by Jog.

3. Kavyalochana by Kelkar.

Paper VI—History of Language and Grammar—Books Recommended:

1. Marathi Bhasha—Udgama Ani Vikasa by Kulkarni, K. P.

2. Sabnis—Adhunik Marathiche Ucehatar Vyakaran.

French

B.A. & B.Sc.

PART II.

Papers I and II to be taken in 1959 and Paper III in 1960.

Drama—

Corneille's Horace.

Poetry—

Oxford Book of French Verse, 13th to the 20th century—numbers 146 to 202.

Prose—

Le livre de monami—by Anatole France—O.U.P.

French Tales of Our Time—By W. Lough Harrap.

Contes Humoristiques—A. L. Carre. (University of London Press.)

French Tales of Our Time by W. Lough Harrap to be reserved for the third year.

B.A.

PART III—BRANCH XII.

1960.

Drama—

Moliere's L'Avare.

Racine's Athalie.

V. Hugo's Hernani.

Poetry—

Oxford Book of French Verse, 13th to the 20th century—Numbers 198 to 231.

Prose—

Colonel Chabert, Gobseck—Honore de Balzac.

Harrap.

Le Barrage—Bordeaux.

Cheque disent les livres. By Emile Faguet, O.U.P.

History of French Literature from the Renaissance to Modern times—

The following books are recommended :—

Cazamin's History of French Literature, O.U.P.

History de la langua francaise. By Ch. des. Granges.

Saintsbury's History of French Literature.

Author's Life and works to be studied : Victor Hugo.

Horace : Odes. Bk. II (To be reserved for the 3rd year).

Cicero : Pro Roscio.

Latin

B.A.

PART III—BRANCH XII

1960.

Drama—

Miles Gloriosus of Plautus.

Adelphi of Terence.

Prose—

Cicero's Pro Legs Manillia.

Tacitus ; Annals Bk. I.

Poetry—

Vergil : Aeneid, Book VIII.

Horace : Odes, Book III.

Juvenal : Satire X.

History of Latin Literature.

Study of a prescribed author's life and works : Cicero.

Hebrew and Syriac

(1) Syriac

B.A. & B.Sc.

PART II.

Prose—

Selections in Syriac Prose for the B.A. Class—Lessons I to XX (St. Joseph's Press, Mannanam).

Poetry—

Selections in Syriac poetry for the B.A. Class, Lessons I to XIV (St. Joseph's Press, Mannanam).

Prosody and Grammar—

Syriac Grammar by Fr. Gabriel (St. Joseph's Press, Mannanam).

History of Syriac literature—

Dr. Wright (A. C. Blackie, London).

Early History of Syria and Palestine and History of the Syrian Church in India—

1. Early History of Syria and Palestine, by Lewis Beyles Petton, D.P.H. (John C. Nimmu, 14, King William Street, Strand, London.)

2. St. Thomas the Apostle (Centenary Souvenir) by Dr. P. J. Thomas, Dr. Placid, Dr. Ettumanookaran and Mr. K. E. Job (Mar Louise Memorial Press, Ernakulam).

3. The Two Apostles of India by A. G. Perumali, S.J. (Catholic Mission Press, Ranchi, Bihar).

4. The Syrian Church of Malabar and its Cultural Contributions, by J. Placid, T.O.C.D., PH D., D. D., D.C.L, and K. E. Job, M A.,L.T. (St. Joseph's Press, Mannanam).

5. History of the St. Thomas Christians, Vols. I and II, by Fr. Bernard, T.O.C.D. (St. Joseph's Press, Mannanam).

6. The Indian Church of St. Thomas by E. M. Philip (C. M. S. Press, Kottayam).

(ii) Hebrew.

B.A. & B.Sc.

PART II.

Prose—

The First Book of Samuel.

Poetry—

1. Psalm 78.
2. Proverbs, Chapter XV.
3. The Prophecy of Nahum.

Grammar—

1. Student's Hebrew Grammar by Michael Adler, B.A. (David Nutt, London).

2. Hebrew Grammar by Davidson.

History—

1. History of Hebrew literature by Michael Adler.

2. The Hebrews, their history and Government, by Professor McCardy (John C. Nimmu, 14, King William Street, Strand, London).

3. Early History of Syria and Palestine by Lewis Boyless Petton, PH.D. (John C. Nimmu, 14, King William Street, Strand, London).

B.A.

PART III—BRANCH XII—SYRIAC.

Group A.

1960.

1. *Prose—*

1. Exodus (whole).
2. Acts of the Apostles (whole).
3. Epistle of St. Paul to Thimothy (whole).
4. Life of St. Ephrem (St. Joseph's Press, Mannanam).

2. *Poetry—*

1. St. Ephrem Morcaux Choisis, Pages 34-73 (Dominican Fathers, Mosul).

2. Isaac of Antixoch Morceui Choisis, Pages 150-176 (Dominica Fathers, Mosul).

3. *Prescribed Author's life and works—*

St. Aphraatis: His complete works, Patrologia Syriaca Series, First part, First volume (whole, comprising 22 homilies), and Second volume, 23rd Homily, pages 1-150—edited by R. Graffin, published by Firmin—Didot-et Socii, via Iacob, 56, Paris.

4. *Grammar—*

1. Syriac Grammar by Fr. Gabriel.

2. Syriac Grammar by Rev. Fr. Thomas Arayathinal, M.O.L. (St. Joseph's Press, Mannanam).

5. *History of Syriac language and literature, by Cardinal. Tappauni (Beirut).*

Group B.

1959.

1. Early History of Syria and Palestine by L.B. Petton, PH.D. (John C. Nimmu, London).

2. St. Thomas the Apostle, Centenary Souvenir by Dr. P.J. Thomas, Dr. Placid, Dr. Ettumanookaran and Mr. K. E. Job.

3. The two Apostles of India, by J. C. Perumalil.

4. History of the St. Thomas Christians, by Fr. Bernard.

5. The Indian Church of St. Thomas, by E. M. Philip.

6. The Syrian Church of Malabar and its cultural contributions, by Placid and Job.

B.A.

PART III—BRANCH XII—HEBREW.

Group A.

1960.

1. *Prose*—

1. The Book of Exodus.
2. The Book of Micaa.

2. *Poetry*—

The prophecy of Sophonias.

3. *Prescribed Author*—

Jeremias the Prophet, Life and work.

4. *Grammar*—

1. Student's Hebrew Grammar, by Michael Adler.
2. Hebrew Grammar, by Davidson.
3. Hebrew Tenses, by Davidson.

5. *History of Hebrew Literature, by Michael Adler.*

Group B.

1959.

1. Early History of Syria and Palestine, by L. B. Petton, PH.D.

2. The Hebrews, their history and Government, by Professor McCardy (John C. Nimmu, London).

Urdu.

B.A. and B.Sc.

PART II (*a*)—URDU, 1959

(*Examination for Papers I and II*)

Paper I—Prose, Poetry and Grammar:

Prose—

1. Zikr-O-Fiker, Vol. II.

2. Nazir Ahamad Ki Kahani by Farahatullah Baig.

Poetry—

3. Rang-O-Ahang, Vol. II.

4. Diwan-e-Zouq-Radif Ya only.

Grammar—

5. Paas-e-Urdu, Anwer Ahmadi Press, Allahabad.

Paper II—History of Literature and Translation:

History of Literature—

6. Urdu Adab-Ki-Tarikh by Nasim Quraishi-Azad Kitab Ghar, Delhi.

Translation—No book is prescribed.

PART II (*b*)—URDU, 1960

(*Examination for Paper III*)

Paper III—Composition—General and Textual:

Non-detailed—

7. Gulistan Amjat by Ahamad Hussain Amjad.
8. Maidan-e-anal by Premchand.
9. Deed-O-Shuneed by Rayis Ahmad Ja'fari.
10. Susral by Showkat Thanavi.

Persian.

B.A. and B.Sc.

PART II (*a*)—PERSIAN, 1959

(*Examination for Papers I and II*)

Paper I—Prose, Poetry and Grammar:

Prose—

1. Siyahat Namah Ibrahim Baig—Vol. I—First half.
2. Ruq'aat-e-Aalamgiri, Vol. I—Edited by N. A. Nadvi.

Poetry—

3. Bustan-e-Sa'di—First two chapters.
4. Diwan-e-Hafzi—Radif Alif only.

Grammar—

5. Misbahul Qawaid by Ja'fari—First three chapters.

Paper II—History of Literature:

History of Literature :

6. History of Persian Literature by Levy.

PART II (*b*)—PERSIAN, 1960

(*Examination for Paper III*)

Paper III—Translation:

Translation—

No text-book is prescribed.

Arabic.

B.A. and B.Sc.

PART II (*a*)—ARABIC, 1959

(*Examination for Papers I and II*)

Paper I—Prose, Poetry and Grammar:

Prose—

1. All Quran : Surah Al. Nur.
2. Bulugh al-Maram—First half.
3. Nafhatul Zamen—First Forty Stories.

Poetry—

4. Mullaqat Antara.
5. Qasida Banat Su'ad.
6. Diwan Ib al-Rumi Radif Jim only.

Grammar—

7. Teach yourself Arabic by Tritton.

Paper II

History of Literature—

8. History of Arabic Literature by H. A. R. Gibb.

PART II (*b*)—ARABIC, 1960

(*Examination for Paper II*).

Paper III

Translation—

No book is prescribed.

B.A. Degree.

PART III—BRANCH XII—URDU,

Group A (*Main*).

(Examination in 1960.)

Paper I—Prose and Poetry—Text-books

Prose—

1. Yadgar-e-Ghalib by Hali.
2. Al Faruq by Shibli.

3. Ghubar-i-Khatir by Moulana Abul Kalam Azad.
4. Waqait-i-Azfari by Md. Husain Mahvi.
5. Ganjha-e-Giran maya by Rashid Ahmad Siddiqui.
6. Anjam by Prof. Md. Mujib.

Poetry—

7. Qasaid-i-Momin—edited by Zia Ahmad Zia.
8. Diwan Ghalib.
9. Rooh-i-Akbar (Central Publishing House, Bangalore-2.)
10. Bal-i-Jibril by Iqbal.
11. Fikr-O-Nishat by Josh.
12. Meyar Ghazal (Kitab Khana Anjuman Tarraqqi-e Urdu, Abid Road, Hyderabad.)

Non-detailed—

13. Aakhri Tohfa by Premchand.
14. Shikast by Kishenchander.

Paper II—Grammar, Prosody and Rhetoric

Grammar and Prosody—

15. Qaqaide-Urdu by Moulvi Abdul Haq, Rhetoric.
16. Tashil al Balaghat by Sajjad Mirza Baig.

Paper III—History of Literature and Literary Criticism

History of Urdu Literature—

17. Mukhtasar Tarrikh Adab-i-Urdu by Dr. Ejaz Husain.

Literary Criticism—

18. Muqaddima Sher Shairi by Hali.
19. Harmari Shairi by Massod Hasan Razvi.
20. Aabe Hayat by Azad.
21. Akbar Namah by Abdul Majid Daryabadi.
22. Tanqidi Jaize by Ehtesham Husain.

Paper IV—Prescribed Author

Prescribed Author

Shibili.

Books recommended—

23. Shibili Namah by Mohd. Ikram.

24. Hayat-e-Shibili by Syed Sulaiman Nadvi.

Group B (Ancillary).

(Examination in 1959.)

One of the following—

1. Cultural History of the Moghul Rulers, 1526 to 1857.

Books recommended for consultation—

Tarikh-e-Hindustan by Moulvi Zakaullah. Vols. III to X.

(Paper I will deal with period from Babar to Aurangazeb and Paper II from Shah Aalam to Bahadur Shah.)

2. Arabic.

Prose and Poetry—

Majaniul Adab, Vol. II—First half—Paper I—Text-books.

Paper II—Translation and Grammar—

Grammar—

Kitabus Sarf and Kitab-al Nahv or Teach yourself Arabic by Tritton.

Translation—from Arabic into Urdu and Vice-Versa.

3. Persian.

Paper I—Prescribed Text-books—

Prose—

Siyahat Namah-e-Ibrahim Baig. Vol. I (First half only).

Poetry—

Diwan-e-Hafiz (Radif Alif only).

Paper II—Translation and Grammar—

Grammar—

Qawaide Farsi by Ja'fari.

Translation from Persian into Urdu and Vice-Versa—No book is prescribed.

4. Hindi.

Paper I—Text-books in Prose and Poetry

Prose—

1. Rasili Kahaniyan.
2. Adhunik Hindi Gadya by Sushila Ayer.

Poetry—

Chainika—Published by Dakshina Bharat Hindi Prachara Sabha, Madras.

Paper II—Composition—General and Textual

Non-detailed—

Madhu Manjari—Published by D. B. H. Prachara Sabha, Madras.

Part III—Branch XII—Persian.

Group A (Main).

(Examination in 1960.)

Paper I—Prose and Poetry Text-books

Prose—

1. Chahar Maqala by Nizami Aruzi.
2. Ruqa'at-e-Abdul Fazl—First Daftar (First half).
3. Vaqai Nemat Khan-e-Aali (First half only).

Poetry—

4. Rustam-O-Soharab edited by Jalaluddin Ahmad Jafari.
5. Zabur-e-Ajam by Iqbal.
6. Kulliyat-e-Ghalib (Radif mim only).
7. Quasaid Urfi (First Qasideh only).
   (Anwar Ahmadi Press, Allahabad).

Non-detailed—

8. Seh Qurae Khun by Sadiq Hidayat.
9. Dil Dadagan by Shajuddin Shifa.

Paper II—Grammar and Rhetoric:

Grammar—

10. Persian Grammar, Prosody and Rhetoric, by Platts
11. Kanzul Balaghat by Jalauddin Ahmad Jafari.

Paper III—History of Literature and Literary Criticism:

History of Literature—

12. A History of Persian Literature by E. G. Browne, Vol. II.

Literary Criticism—

13. Navisandagan-e-Buzarg by Nasrullah Falsafi.
14. Darya-e-Gauhar by Dr. Meddi, Vol. I only.

Paper IV—Prescribed Author:

Ibus Sina.

Books recommended—

15. Zindagani-o-Andisha-o-Kar-e-Pur-i-Sina by Sayeed Nafisi.

Group B (Ancillary).

(Examination in 1959.)

Any one of the following subjects:—

1. Cultural History of minor Persian Dynasties from Samanids to the end of Seljuqs.

Paper I—

The Samanids and their successors.

Books recommended for study—

Khulasat al Akhbar by Khound Mir. (Maqala Hashtum- First half).

Paper II—

The Seljuqs.

Books recommended for study—

Khulasat-al Akhbar by Khound Mir (Maqala Hastum—Second half).

2. Cultural History of the Post-Mongol Period.

Paper I—

Shah Ismail to Shah Abbas.

Paper II—

Shah Safi to Sultan Hussain.

Books recommended for study—

Tarikh-e-Iran by Malcum Khan.

3. Arabic.

Paper I:

Prose and Poetry—

Majaniul Adab, Vol. II (First half only).

Paper II—Grammar

Saif-i-Mir and Navh Mir or
Teach yourself Arabic by Tritton.

Translation from Arabic into English and Vice-Versa.

No book is prescribed.

Arabic.

PART III—BRANCH XII—ARABIC.

Group A (Main).

(Examination in 1960)

Paper I—Prescribed Texts in Prose and Poetry:

Prose—

1. Al-Quran-Surat al-Nisa, Surat al-Ma'ida and Surat al-An'am.
2. Al-Itqan by Suyuti, Vol. I only (Egyptian Edition).
3. Sahih al-Bukhari (Kitab al-Iman and Kitab al-Ilm only).
4. Ghunyatal-Talibin by al-Jili. (First fifty pages only of the Egyptian Edition.)

Poetry—

5. Diwan Omar Ibn Abi Rabi'a (Radif Alif and Ba only.)
6. Diwan Abai al' Athiyah—Radif mim only.

Non-detailed—

7. Tarikh al Khulafa by Suyuti.

Paper II—Grammar and Rhetoric:

Grammar—

8. Al-Navh al Wadeh-Thanavi.

(Volumes I to III Ma'arif Press, Cairo publications.)

Rhetoric—

9. Al-Balaghat al Wadeha (Ma'arif Press, Cairo, publications.)

Paper III—History of Arabic Literature and Literary Criticism:

10. History of Arabic Literature by Nicholson.

Literary Criticism—

11. Fi al-Adab al-Jahili by Dr. Taha Husain.

12. A. Shihab al-Rashid by Lutfi Juma.

Paper IV—Prescribed Author:

Ibn Bajjah al-Andhalusi.

Book recommended—

Ibn Bajjah al-Andaluis by ' Umar Farrukh '

Group B (Ancillary Subject).

(Examination in 1959)

Paper I—

History of the Arabs.

Pre-Islamic Period.

Books recommended—

Sannajat al- arab fi Taqaddumat al-Arab by Naufal Effendi.

Paper II—

Post Islamic Period up to 850 A.D.

Books recommended—

1. Al-Mawahib al-Ladunniah by al-Qastalani. (Al-Maqsad al-Awwal).

2. Muhadaratal Tarikh al-Umam-al-Islamiah by Khadri Bek.

Tamil.

B.A. & B.Sc.

PART II (*a*)—TAMIL, 1959

(*Papers I and II*)

Paper I—Poetry and Grammar:

Poetry— Selections published by the University of Madras—

1. Cirupanarrupadai ... 268 lines.
2. Purananuru ... 200 lines from Kapilar's verses
3. Kuruntokai ... 50 lines
4. Tirukkural ... 100 lines (Kuticeyalvakai, Ulavu, Nalkuravu, Iravu and Iravaccam).
5. Chilappadhikaram ... 216 lines (Kadukan kathai).
6. Chintamani ... 312 lines from Kemaccariyar Illampakam.
7. Periyapuranam ... 400 lines from Taduttatkondapuranam.
8. Kambaramayanam ... 400 lines from Valivadaip patalam.
9. Desikavinayakam Pillai's Umarkayyam. 160 lines.
10. Thanippadalkal ... 80 lines from Tanippadal Thirattu

Grammar—The following syllabus is prescribed—

Sandhi: Valleluttu mikumidam, mikavidam.

Na-Na, La-La tiribukal.

Udanpattu mey.

Kurriyalukaram kedal.

Vikaram Tondral, tiridal, keduthal.

Ceyyul vikaram aru:

Mudarkurai, Idaikkurai, Kadaikkurai.

Chorrodariyal: Vinari, Peya Vina, payanilayatal.

Verrumaittokai. Alvalittokaikal.

Tamil Marabum pira marabum.

Ankilaccorrotarai otti amaintha tavarana valakkukal.

Valuvamaithikal: Kalavaluvamaithi.

Idavaluvamaithi.

Palvaluvamaithi—Matippuppanmai.

Marabuvaluvamaithi.

Irattaikkilavi.

Adukkuttodar.

Ennummai, Eccavummai, Murrummai, Izhivuchirappu, Uyarvuchirappu.

Chorrodarkkurikal: Merkol kurikal, Piraikkotu valankal, Veyyukurikal.

Aruki valankal.

Cholliyal: Peyar: Tinai pal unarttum murai—Vikutikal.

Vinai—Kalam unarttum murai—Itainilaikal.

Peyarecham—Vinaiyeccam—Murreccam.

Eval Viyankol—Vikutiakal.

Tolirpeyar—Vinaiyalanaiyum peyar.

Palpaka akrinai.

Cheyappattuvinai valaukum murai.

Pakupata uruppukkal.

Idaichol—Urichol—Tisaichol—Vadachol.

Akupeyar (Vakaikalainthu).

Tan, Tam—Idappeyarkal, Itaichorkal.

Porul: Akam—Elu tinai. Mutual Kara Uri.

Puram—Panniru tinai.

Tinai Mayakkam.

Yappu: Vennba—Kural vennba—Asiriyappa.

Viruttam.

Ethukai, Monai, Muran Tokaikal.

Padathil varum pira pa vakaikalum pira yappu nayangalum.

Meyppatukal: Encuvaimattum.

Ani: (Vakaika venta).
Tanmai.
Uvamai.
Uruvakam.
Verrumai.
Verrupporulvaippu.
Tarkuripperram.
Piritumolital (Ottu).
Pinvarunilai.
Ciledai.
Iraicci-Ullurai.
Pilai tiruttam payircikal.
Ilakkiyat tamilum ceytittal tamilum.
Oru-Or: Valankum idankal.
Atu-Aktu: Valankum idankal.
Tan-Tam: Valankum idankal.
Anru, Alla, Allan mutaliyavai Valankal.
Venta—Ventam.
Ra, Ra—Verupadu—Aticcorkalal ariyummurai.
La, La—Verupadu—
Ksa, tea.
Na, Na.
Atarku, Atarkku.
Avarkku, Avarku, Parpala, Palppala, Katkuti Katkkuti.

NOTE—The hundred marks allotted for this Paper I, shall be distributed between Poetry and Grammar in the proportion of 80 : 20. The questions on Grammar shall be based on the syllabus correlated with the Poetical Selections prescribed.

Paper II

Drama and Prose—

Drama: Manonmaniyam by Sundaram Pillai (S.S.W.P. House, Madras).

Prose—

1. Anpumuti by T. P. Meenakshisundaram (T.P.M. Jubilee Commemoration Committee, Chintadripet).

2. Centamilkatturaikal by Venkatachalam Pillai (Palaniappa Bros.).

NOTE.—The marks shall be distributed in the proportion of 80 : 20 between the Essay type questions and the questions on annotations.

PART II (*b*)—TAMIL, 1960.

(*Paper III*)

Paper III—

Translation, Composition and a General History of Tamil Literature.

Books recommended for 'A General History of Tamil Literature.'—

1. Murkalappirkalattamil pulavar by Maraimalai Adikal (S.S.W.P. House, Madras).

2. Sankakalattamilum Pirkalattamilum by Dr. Swaminatha Aiyar (Theagaraja Vilas, Tiruvatteeswaranpet, Madras).

3. Ilakkiya Varalaru by K. Subrahmanya Pillai (S.S.W.P. House, Madras).

NOTE 1.—Questions should not be based on these texts, but should be of general nature on the History of Tamil Literature. Questions should not be asked to fix the dates of Poets, etc.

NOTE 2.—There shall be three Parts in the Question Paper, the first Part on Translation from English to Tamil, the second Part on General Composition and the third Part generally on 'A History of Tamil Literature.' The marks shall be distributed in the proportion of 40 : 30 : 30.

B.A.

PART III—BRANCH XII—TAMIL.

Papers I and II.

Paper I—

History of Tamil Literature—History and Developments of various trends and their changes in the subject-matter idiom, rhythm and versification and other modes of expression generally, all through the ages and in particular from age to age or century to century:—

1. The condition of literature as may be gleaned from Tolkappiyam.

2. Cankam period: Characteristics of Cankam Literature—the conception of Tokai and the absence of Epic before Cilappatikaram.

3. The eighteen ethical works—their general trends and characteristic features—inter-relations—influence of Kural and its place in Tamil Literature—The relationship between Kilkkanakku snd Melkanakku—the later Ethical Literature and their relationship with Kilkanakku.

4. Growth of Epics—Cilapatikkaram—its relationship with Cankam Age—its influence on later day literature—its relationship with Manimekalai.

5. The so-called major and minor five epics—a criticism of this conception from the historical and literary point of view.

6. Kamba Ramayanam—its age—characteristic features—importance and influence.

7. Periyapuranam—its age—characteristic features—importance and influence.

8. The later Sthalapuranas.

9. The various kinds of prabandams—their rise and development in general with an explanation of the influences shaping them.

10. The folk song influencing literature from time to time.

11. The history of drama—Kuravanchi, Pallu, Nondi Natakam, Kirthanai natakam—Foreign dramas and their influence—Modern Dramas and Radio Dramas and Cinemas.

12. Prose—Development from the earliest Age to the modern times.

13. Modern trends and modern kinds of literature.

14. Religion and Philosophy in Tamil literature—the development and varieties.

15. The general trends of the Cankam age, of the Pallava age, of the later Colas of the later Pandyas, of the Vijayanagar period and of the period of the Western influence.

16. The contributions of the various religions and their institutions (Mutts), etc., to Tamil literature.

Books recommended.

1. K. S. Srinivasa Pillai—Tamil Varalaru, Parts I and II.
2. K. Subramania Pillai—Ilakkia Varalaru.

3. Somasundara Desikar—16th Century Tamil Poets ; 17th Century Tamil Poets.

4. Pandai Tamil Ilakkiya Varalaru by Sadasiva Pandarattar—(a) 300-600 A.D.; (b) 13th, 14th and 15th Centuries.

Paper II—History of Tamil Nad and Culture—

I. History—

1. Sources of our study.

2. Influence of geography on history—Historical divisions of the country in the various periods.

3. The culture of the earliest inhabitants—Old Stone Age—New Stone Age—Race types—Linguistic and Cultural affinities—Megalithic monuments—Rock paintings—Painted pottery.

4. Pre-Cankam history and Culture—Cankam Age—Foreign contacts.

5. Post-Cankam period—Kalabhras—Foreign influence—Pallavas conflict with the North and the South—the Pandyas, Mutharaiyas, Irikkuvel; the Religious condition—Village community and Local-Self Government Polity.

6. The Later Colas—their growth — Conflict with other powers—their influence in and outside India—The Rise of the Later Pandya Power—the conflict of the Cholas, Pandyas, Hoysalas and Yadavas.

7. The fall of the Tamil Political Power—influence of Vijayanagar Rulers, Nayaks, Marattas—the development of Western and Muslim influence—the Palayagars.

8. The struggle for Freedom—Gandhian Era.

II. Culture—

The Social and Economic conditions—Literature—Religion and Philosophy—Painting—Sculpture—Iconography—Architecture—Music and other Fine Arts—Handicrafts—Polity, Custom and Law, all forming a distinctive Culture, developing from Age to Age, influenced by and influencing others.

Books recommended—

1. Ten Indiyac-cirpankal by Kanakarathnam.
2. Alaku Kalaikal by Seen Venkataswamy.
3. South Indian History by K. Nilakanta Sastry.

4. Tamils 1,800 years ago by Kanakasabai Pillai.

5. Contributions of South India to Indian Culture by S. K. Aiyangar.

NOTE.—The Questions on Political History shall bear 40 marks and the questions on culture shall bear 60 marks.

(*Papers III to VI*—1960.)

Paper III

Prescribed Texts I—

1. Perumbanatuppadi—248 lines.

2. Tirukkural-Araciyal—500 lines.

3. Purananuru, Vol. 51-100—635 lines.

4. Cilappatikaram—(*a*) Urkan Katai, (*b*) Ataikkalakkathai and (*c*) Kolaikkalakkathai—658 lines.

Paper IV

Prescribed Texts II—

1. Kambaramayanam—Katchi Ninthai and Urukkattu-patalams—1,104 lines.

2. Villiputturar Baratham — Kandavadhahanaccarukkam—304 lines.

3. Tiruvilaiyadalpuranam—Parancothiyar — Virakuvirapatalam —total 280 lines.

4. Tiruvembavai and Tiruppavai—200 lines.

5. Cekkilar Pillaittamil—1st five in each of the 10 paruvams —200 lines.

Paper V

Grammar, Prosody and Poetics—

1. Nannul Kandikai urai—Arumukha Navalar.

2. Yapparunkalakkarikai—Old Commentary.

3. Dandiyalankaram—Porulani Iyal—General study without details of classifications.

NOTE.—The questions on Grammar shall bear 40 marks: Questions on Prosody 30 marks and Questions on Poetics 30 marks.

Paper VI

History of the Tamil Language and Elements of the Dravidian Comparative Grammar.

1. *Syllabus for the History of the Tamil Language*

General—The place of Tamil in the Dravidian family of Languages—Its high antiquity—Its geographical area in ancient times—the Centamil and Kotuntamil Counties—Very early cultivation of Tamil—The three Cankams.

The Periods of Tamil Language—The Old or Cankam Tamil—The Mediaeval Tamil and the Modern Tamil—Illustrative Literature of each Period—Grammars of the different Periods—The extent of Foreign influence on Tamil Grammars.

Phonology.—Vowels—Their relationship to the primitive Dravidian. Vowel system—History of Vowels—Accent and Emphasis—Rising, Falling and Vanishing Accents—Influence of accent on Word change and in Prosody Alapedai—Mutation of Vowels—Vowel Harmony—Vowel Sandhi—Glides.

Consonants—Their relation to the Primitive Consonants—History of Consonants—Mutations of Consonants, Palatalization, Dentalization, Voicing, Unvoicing, Consonant length, Assimilation, Alapedai—Consonantal Sandhi.

Laws of Tamil Syllabation.—Difference between Tolkappiam and Nannul—Light on the Nature of Loan words.

Morphology.—Historical treatment in the Old and Modern Tamil of the following—Nouns—Pronouns—Case, the Verbs, The Passive Voice, The Moods—Imperative, Infinitive, Subjunctive. The Tenses—The tense-formation—The principles of their use—Negative particle. The Relative and Verbal Participles.

Word Building.—By Composition—Compound words (Tokai, Ummai, Uvamai, etc.)—By Derivation—By Root creation—Back formation—Double bases, etc.

Vocabulary—The general character of Tamil Vocabulary at different Periods—Borrowings—Their causes—Doublets—Telugu and Kannada Elements in Tamil—Loss of Old words—Nature and extent—Sanskrit words—Tatsamas—Tadbhavas (Rules regarding these)—Prakrit borrowings—Manipravala style—Other borrowings (Hindi, Portuguese, English, etc.)—Hybrids—Tests for distinguishing Loan words.

Semantics—Changes in the meaning of words—Elevation, Degradation, Specialization and Generalization from age to age.

Syntax—Historical. Study of the order of words in a Sentence—Deviation from the Normal—Causes—Difference between the Syntax Poetry and Prose—Foreign influence in Tamil Syntax.

2. *Syllabus for the Elements of the Dravidian Comparative Grammar*: *Dravidian Languages*—The Dravidian Group of Languages and their chief characteristics—Enumeration of the Dravidian Languages.

Dravidian Phonology—The Primitive Dravidian Parent Language—Vowel System—Changes—Accent—Harmonic sequence of Vowels—System of Consonants—Origin of Cerebrals (Retroflex —Dialectic interchange of Consonants—Euphonic permutation of Consonants—Sandhi—Nasalization Prevention of Hiatus—Dravidian Syllabation.

Dialect—Centamil and Kotuntamil.

Morphology—The Noun.

Gender—Dravidian Nouns divided into two Classes denoting Rationals and Irrationals.

Number—Singular and plural—No Dual—Singular—Masculine, Feminine and Neuter—Plural—Principles of pluralization.

Case—Principles of Case-formation—Dravidian Cases—Comparison with Sanskrit Cases.

The Pronoun—Pronouns of the First and Second Person—Comparison of Dialects—The Reflexive Pronoun—Pluralization of the Personal and Reflexive Pronouns—Demonstrative and Interrogative Pronouns—Their bases—Demonstrative and Interrogative Adjectives and Adverbs—Honorific Demonstrative Pronouns.

The Verbs—Structure of the Dravidian Verbs—Roots used either as Verb or Nouns—Formative Particles often added to Roots—Classification of Verbs.

Casual Verb—their formation.

Frequentative Verbs.

Conjugational System—Formation of the Tenses—Their significance and force—The Present Tense—The Preterite Tense—The Future Tense—The Verbal and Relative Participles.

Formation of Moods—Methods of forming the Conditional, the Imperative and the Infinitive.

The Voice—Active and Passive—The Negative Voice—Combination of Negative Particles with Verbal themes—The Dravidian Negative Particles.

Formation of Verbal Nouns, Derivative Nouns and Abstract Nouns.

Comparative Syntax—The Syntax of the several Languages compared—The extent of Foreign influence over the Syntax of the several Languages.

NOTE.—The Questions on the History of the Tamil Language shall carry 50 marks and the Questions on the Elements of the Dravidian Comparative Grammar shall carry 50 marks.

Telugu.

B.A. and B.Sc.

PART II (*a*)—TELUGU, 1959.

(*Papers I and II*)

Paper I.

A. Old Poetry—

1. Tikkana—Udyogaparvam—Krishna Rayabaram—Cantos 3 and 4.
2. Srinatha—Haravilasam—Chirutondanambi Katha—Canto 2.
3. Dhurjati—Sri Kalahasti Mahatmyam—Nalkiruni Katha.

B. Modern Poetry—

Jandhyala Papaya Sastry—Vijaya Sri (Telugu Pandit, A.C. College, Guntur).

Paper II.

C. Drama—

1. Vedam Venkataraya Sastry—Vikramorvasiyam (V. Venkataraya Sastry Bros., 4, Mallikeswara Gudi Lane, Lingi Chetty Street, Madras-1).
2. Vidvan Vedam Venkata Krishna Sarma—Urubhangam Telugu Pandit, S.K.P.D. High School, Madras-1.

D. Prose—

Duvvuri Ramireddi—Saraswata Vyasamulu (Kavikokila Publications, Nellore).

E. Grammar, Prosody and Poetics—

According to the Syllabus prescribed (Vide pp. 450-1, University Calendar, Vol. II. 1953-54 Grammar: Scope....................Kavya... doshas and gunas).

PART II (*b*)—TELUGU, 1960.

(*Paper III*)

F. Non-detailed Prose—

Chirantananda Svami—Sri Rama Krishnuni Jeevita Chaitria (Sri Ramakrishna Seva Samajam, Morrispeta, Tenali).

B.A. Degree.

PART III—BRANCH XII—TELUGU, 1959.

(*Papers I and II*)

Paper I.

1. *History of Telugu Literature—*

The following books are prescribed for consultation only:

1. Khandavilli Lakshmiranjanam—Andhra Vangmaya Charitra sangraham (author, Head of the Department of Telugu, Osmania University, Hyderabad).

2. Vanguri Subbarao—Andhra Vangmaya Charitra. (V. Narasimha Rao, Kamala Kuteer, Narasapur, West Godavari district).

Paper II.

2. *History of Andhra Desa and Andhra Culture—*

According to the Syllabus prescribed.

Inscriptions—(1 to 10) published by Jayanti Ramayya Pantulu (Telugu Academy, Kakinada.)

(Papers III to VI—1960)

Paper III.

3. *Prescribed Text books I—*

1. *Old Poetry—*

1. Nannichoda—Kumara Sambhavam, Parvatiparinayam Cantos 7 and 8.

2. Palkuriki Somantha—Dvipada Panditaradhya Charitra—Sura Sanamma Katha.

3. Pingali Suranna—Kalapurnodayamu—Cantos 1 and 2—(Without the avatarika or the introductory verses.)

4. Kankanti Paparaju—Uttara Ramayanamu—Sita Vanavasagamanamu.

2. *Modern Poetry—*

1. T. Sivasankara Sastri—Dikshita Duhita (Sarasvati Niketanamu, Vetapalem, Guntur District).

2. C. Narayana Reddi—Nagarjuna Sagar (61, M. L. A. Quarters, Hyderabad.)

Paper IV.

4. *Prescribed Text-books II—*

1. *Drama—*

1. V. Subbarayadu—Venisamharamu. (V. Eswaravara Prasada Rao, near Government Training College, Innespeta, Rajahmundry, East Godavari District.)

2. Chilakamarti Lakshminarasimham—Gayopakhyanam (Kondapalli Viravenkayya, Book Sellers, Rajahmundry, East Godavari district).

2. *Prose—*

Veturi Prabhakara Sastri—Meegada tarakalu (Veturi Sankara Sastri, Arsha Rasayana Sala, Muktyala, Krishna District).

Paper V.

5. *Grammar, Prosody and Poetics—*

1. Chinnayasuri Balavyakarnamu—Tatsama, Acchika and Kriya Paricchedamulu.

2. Bahujanapalli Sitaramacharyulu—Proudha Vyakaranam, Sandhi, Sobda, Karaka and Kriya Paricchedamulu.

3. Narasabhupaliyam—Cantos 3 and 5.

4. Appakaviyam—Canto 3.

5. K. Anantacharyulu—Dasarupakamu.

Paper VI.

6. *History of Telugu Language and Elements of the Comparative Grammar of the Dravidian Languages according to the Syllabus prescribed.*

Kannada.

B.A. and B.Sc.

PART II (*a*)—KANNADA, 1959

I. Old Poetry

(*a*) Pampa Bharata 12th Aswasa (221 Stanzas) (Published by the University).

(*b*) Gada Yuddha by Ranna—7th and 8th Aswasas (68+67=135 stanzas) (Published by the University).

II. Mediaeval Poetry

(*a*) Jaimini Bharata—Sandhis 1, 2 and 3, omitting stanzas 7, 9, 10 and 29 in Sandhi 3. (Published by the University).

(*b*) Megha Sandesha by Kukke Subrahmanya Shastry (Kavyalaya, Mysore).

III. Drama

Shakuntala by Basappa Shastry.

IV. Old Prose

Ramaswamedha (Muddana)—Chapters 13, 14, 15 and 16.

V. Modern Prose

(*a*) Samskrit by D. V. Gundappa.

(*b*) Prachina Sahitya by T. S. Venkannaya.

VI. Grammar

Portions relating to Grammar in Kannada Kaipidi (Mysore University Publication).

VII. History of Literature

An account of the life and words of the following authors together with those of the prescribed works:—

1. Nagachandra.
2. Rudra Bhatta.
3. Akka Maha Devi.
4. Harihara.
5. Chatu Vithalanatha.
6. Ratnakara Varni.

PART II (*b*)—KANNADA, 1960.

(*Paper III*)

VIII. Non-detailed study

(*a*) Avyakta Manava by K. S. Haridasa Bhat (M. G. M. College, Udipi).

(*b*) Odahuttidavaru by K. S. Karantha (Puttur).

PART III—BRANCH XII—KANNADA, 1959

(*Papers I and II*)

Paper I

History of Literature—

Kannada Sahitya Charitre by Dr. R. S. Mugali (For consultation: Kavi Charite, Volumes 1 and 2 by Narasimhachar).

Paper II

History of Karnataka and Culture—

1. Kannada Nadina Charitre, parts 1 to 3 (Kannada Sahitya Parishat, Bangalore).

2. Popular Culture of Karnataka by Masti Venkatesiengar.

For Consultation—

1. Heritage of Karnataka by R. S. Mugali.

2. Karnataka Darshana (Commemoration Volume in honour of R. R. Diwakar).

Papers III to VI—1960.

Paper III.

Prescribed Text-books I—

1. Adipurana (Pampa)—14th Aswasa (149 stanzas).

2. Kabbigara Kava (Andayya).

3. Sri Rama Pattabhisheka by Mahalakshmi.

4. Chitrangada by K. V. Puttappa.

Paper IV.

Prescribed Text-books II—

1. Ramaswamedha, Chapters 1 to 7.

2. Veni Samhara Nataka Prati Kirti.

3. Bhasa Bharata Chakra by L. Gundappa.

4. Jeevana Soundarya mattu Sahitya by D. V. Gundappa.

5. Rayachur Vijaya Krishnappa (Vasantha Malike Publication, Mangalore-3).

Paper V.

Grammar, Prosody and Poetics—

1. Sabdasmriti by Nagavarma.

2. Portions relating to Prosody and Poetics from Kannada Kaipidi (Mysore University Publications).

Paper VI.

History of Language and Elements of the Dravidian Comparative Grammar:

1. History of Kannada Language by Narasimhachar.

2. Kannada Bhasha Shastra by R. Y. Dharwadkar.

3. Kannada Varnagalu by Sediyapu Krishnan Bhat (Kannada Research Institute, Dharwar).

Malayalam.

B.A. and B.Sc.

PART II (*a*)—MALAYALAM, 1959

(*Papers I & II*).

Paper I.

1 & 2. Niranam works and Cherusseri. ...	Published by the University.
3. Unnayi Variyar	Nalacharitram—Nalamdivasam (Mathrubhumi Edition).
4. Vallathol	Abhigjana Sakuntalam—Published by Vallathol Granthalayam, Cheruthurithi.
5. Asan	Chintavishtayaya Seetha—Published by Sarada Book Depot, Alwaye.
6. Balamani Amma	Lokantharangalil—Published by Mathrubhumi Printing and Publishing Co., Ltd., Kozhikode.
7. C. H. Kunhappa	Vicharakorakam—Published by Cannanore Printing Works, Cannanore.
8. Kuttikrishna Marar ...	Sahitya Vidya—Published by P. K. Brothers, Kozhikode.

Paper II.

Non-detailed—

1. P. K. Parameswaran Nayar.	Mahatma Gandhi—Published by The National Book Stall, Kottayam.
2. Attur Krishna Pisharoti ...	Kerala Katha, Part II—Published by R. T. Bhattarak Brothers, Sri Thilakam, Trichur.

PART II (*b*)—MALAYALAM, 1960.

Paper III—1960.

An outline of the History of Malayalam Literature.

No text-books prescribed.

Consultation by Teachers—

1. Pradakshinam ... ... By Dr. C. A. Menon.
2. Adhunika Malayala Sahityam. By P. K. Parameswaran Nayar.

PART III—BRANCH XII—MALAYALAM.

Papers I and II—1959.

Paper I.

History of Literature—

(A study of only the outlines of the History of Malayalam Literature is expected).

The following books are prescribed :

1. Dr. C. A. Menon ... Pradakshinam, Published by The Lokavani Publication—Tambaram.
2. P. K. Parameswaran Nayar. Adhunika Malayala Sahityam—Published by Sri Rama Vilasam Press, Trivandrum.

Books recommended for consultation

1. Ullur S. Parameswara Iyer. Kerala Sahitya Charitram—(A parts) Published by the University of Travancore.
2. T. M. Chummar ... Bhasha Gadya Sahitya Charitram—Published by National Book Stall, Kottayam.

Paper II

History of Kerala and Culture—

No Text-books prescribed

Books recommended for consultation—

1. The Chera Kings of the Sangam age by K. G. Sesha Iyer.
2. Chronology of the early Tamils by K. N. Sivaraja Pillai.

3. Kerla Charithathile Iruladanja Edukal by Elankulam Kunjan Pillai.

4. Chila Kerala Charitra Parinamangal by Elankulam Kunjan Pillai. (All Parts)

5. History of Cochin, Volumes I & II by K. P. Padmanabha Menon.

6. Tranvancore State Manual, Volume II by T. K. Velu Pillai.

7. Malabar Manual by Logan.

8. Malabar and the Portughese by K. M. Panikkar.

9. Malabar and the Dutch by K. M. Panikkar.

10. The Portughese Pirates by O. K. Nambiyar.

11. Koothum Kootiyattamum by Ammaman Thampuran.

12. Kootiyattam by Sri Narayana Pisharoti.

13. Keralathile Nadodi Natakangal, University Publication.

14. Land of Perumals by Francis Day.

Papers III to VI—1960.

Paper III.

Prescribed text-books I (Upto including Ezhuthachchan)—

1. Ramacharitram: First 10 Patalams.	Edited by P. V. Krishnan Nayar.
2. Kannassa Ramayanam Balakandam: First 100 Verses.	Any Press.
3. Kuchela Gathi	By Cherusseri—400 Lines.
4. Mahabharatam—Santhi Parvam.	By Thunchathu Ezhuthachchan.
5. Unnuneeli Sandesam, Poorva Bhagam.	Any Editions.
6. Pracheena Malayala Gadya Matrukakal.	Edition by Dr. P. K. N. Pillai.
7. Uttara Ramayana Gadyam, Part I.	By Cochin Bhasha Parishkarana Committee.

Paper IV.

Prescribed text-books II (Post-Ezhuthachchan Period)—

1. Malayalam Kollam: First two Sargas. — By Kochunni Thampuran.
2. Kirmeera Vadham ... By Kottayathu Thampuran.
3. Uttara Rama Charitam... By Chattukurti Mannadiar.
4. Kamabhooshanam ... By Ullur S. Parameswara Iyer, Ullur Publication, Jagati, Trivandrum.
5. Niramala ... ... By Venni Vasu Pillai, National Book Stall, Kottayam.
6. Sahitya Vicharam ... By M. P. Paul, National Book Stall, Kottayam.
7. Kalayum Kalavum ... By Dr. Bhaskaran Nayar.

Paper V.

Grammar, Prosody and Poetics—

1. Grammar ... ... Kerala Paniniyam.

Omitting Peetika and the detailed discussion of the various grammatical theories. Only the study of the principles to be emphasised.

2. Prosody—Vritha Manjari.
3. Poetics—Bhasha Bhooshanam.

Paper VI.

History of Language and Elements of the Dravidian Comparative Grammar.

Prescribed—

1. Kerala Bhashayute Vikasa-Parinamangal. By Elankulam Kunjan Pillai.
2. Evolution of Malayalam. By Dr. A. C. Sekhar.

For consultation—

Comparative Grammar of Dravidian Languages, by Dr. Caldwell.

Text-books for Parts I, II and III of the Three-Year Degree Examinations (1960-61).

B.A. & B.Sc.

1960-61

PART I (a) —ENGLISH—1960.

(*Papers I to III*)

Shakespeare—

Much Ado About Nothing.
King Lear.

Poetry—

The same as for 1959.

Prose—

The Art of Life—Macmillan.
Essays of To-day—O.U.P.

PART I (b)—ENGLISH—1961.

(*Paper IV*)

Non-Detailed Reading—

Silas Marner.

Modern Portrait Essays—Macmillan (Ed. M. Alderton Pink).

B.A.

PART III.

Group A, 1961.

(*a*) *Shakespeare—*

Richard III. The Tempest. (A general knowledge of the other plays of Shakespeare will be required.)

Drama:

For Non-Detailed Study—

Dr. Faustus—Marlow.

St. Joan (Bernard Shaw).

For Non-Detailed Reading—

She Stoops to Conquer—Goldsmith.

The First and the Last—Galsworthy.

The Admirable Crichton—J. M. Barrie (Longmans).

***Prose*:**

For Detailed Study—

Essays of Elia (First series).

Essays by Modern writers: Jepson (Longmans).

For Non-Detailed Reading—

Evan Harrington: Meredith.

Barchester Towers: Trollope.

Poetry—

Wordsworth's 'Prelude'—Book I

and

The following selections from Standard English Poems (Ed. Young and K. R. Srinivasa Iyengar) (O.U.P.) :—

Milton: L'Allegro and IL Penseroso.

Pope: Epistle to Arbuthnot.

Collins: Ode to Evening.

Browning: Childe Roland to the Dark Tower came.
The Last Ride Together.

Arnold: Dover Beach.

Yeats: The Tower.

Brooke: Menelaus and Helen; Peace; Safety; The Dead; The Soldier.

Hodgson: The Song of Honour.

Lawrence: Snake.

NOTE.—A general knowledge of the other poems of Wordsworth will be required.

N.B.—In all the four papers, credit will be given for a good general knowledge of English Literature.

Group B—Ancillary.

1960.

1. *History of English Literature—*

Books recommended—

(1) Legouis—A Short History of English Literature.

(2) Compton—Rickett—A Short History of English Literature.

(3) Sampson, G.—A Concise History of English Literature.

(4) Hudson—An Introduction to the Study of Literature.

(5) Hudson—Outline History of English Literature.

2. *Social History of England—*

Books recommended—

Trevelyan—English Social History.

B.A. & B.Sc.

PART II (a)—SANSKRIT—1960.

1. Kalidasa's Sakuntala.
2. Kalidasa's Megadhuta (Whole).
3. Bharavi's Kiratarjuniya—Canto I only.
4. Dandin's Dasakumaracharita—Ucchvasas 2, 3 and 4 only.
5. Bhamaha's Kavyalankara—Chapters 1 to 3.

The allocation of text-books for the three papers shall be as follows:—

Paper I—

Sakuntala, Meghadhuta and Kiratarjuniya.

Paper II—

Dasakumaracharita and Translation from Sanskrit into English and English into Sanskrit.

40 marks to be allotted for prose-text and 60 marks for translation.

PART II (b)—SANSKRIT—1961.

Bhamahalankara—Poetics and History of Sanskrit literature; 50 marks to be allotted for each subject.

Text-books—

Macdonell; History of Sanskrit Literature, Chapters X to XIV.
Keith: Classical Sanskrit Literature—Heritage of India Series.

B.A.

PART III—BRANCH XII—SANSKRIT—SECTION A.

Examination for Papers I and II to be held in 1960.

Paper I—

Books of the later period I—

1. Bhavabhuti's Uttararamacharita.
2. Bhoja's Campuramayana—Ayodhya Kanda only.
3. Harsha Carita—Ucchvasa 3.

Paper II—Ancient Indian History and Culture upto 1000 *A.D.*

Books recommended for study—

1. K. A. Neelakanta Sastri : History of India, Volume I.
2. Basham: The wonder that was India.
   Copies can be had of Orient Longmans & Co., Madras -2.

Books recommended for consultation—

History and Culture of the Indian People, Bharathiya Vidhya Bhavan, Bombay. (Volumes 1 to 6.)

Examination for Papers III to VI to be held in 1961.

Paper III—

Books of the Early Period—

1. Macdonell: Vedic Reader: The following selections:—
   Agni I. 1.
   Savitr I. 35.

Maruts I. 85.

Visnu I. 153.

Funeral Hymn. X. 14.

Pitaras X. 15.

Gambler X. 34.

Yama X. 135.

2. Aitareya-brahmana VII—3 and 4.
3. Kathopanishad—First Adhyaya—Text only.
4. Gauthama Dharma Sutra—Text only—Chapters 1 to 9. Government Press, Mysore or Anandasrama Press, Poona.

Paper IV—

Books of the Later Period II—

1. Mahabarata—Viduraniti—Prajagaraparva in Udyogaparva—Chapters 33 to 40.
2. Patanjali's Mahabashya I-I-I-.
3. Bhagavadgita—Chapters 1 to 6.

Paper V—

Comparative Philology with special reference to Sanskrit, according to the existing syllabus for Grammar (historical) under Part III Sanskrit and History of Sanskrit Literature—Vedic Period only.

Macdonell: History of Sanskrit Literature.

Winternitz: History of Indian Literature (Volume I).

Paper VI—

Elements of Poetics, Grammar and Indian Logic.

1. Dandin's Kavyadarsa—Pariccheda I.
2. Grammar—Varadaraja's Madhya Sidhantakaumudhi—the Chapters on Samjna, Pancasandhi and Karaka only (Chowkhamba Book Depot, Benares).
3. Annambhatta's Tarkasangraha with Nyayabodhini.

PART III—BRANCH XII—SECTION B—SANSKRIT.

Papers I and II—1960.

1. Prescribed text-books—General—Paper I—

(i) Visvanatha Pancanana—Muktavali with Dinakari of Sabdakhanda.

(ii) Gauthama dharma Sutras—First nine Paricchedas.

(iii) Manusmriti—Chapter 9. Text only.

2. Prescribed text-books—General—Paper II—

(i) Siddhanthakaumudhi—Purvardha only omitting Tadhita.

(ii) Rig Veda. Macdonell's Vedic Reader, I to X hymns (both inclusive)—Text only.

(iii) Kathopanishad—Text only.

Papers III to VI—1961.

3. Prescribed text-books—General Paper III—

(i) Jaiminiya Nyayamalavistara from the beginning to the end of Pada 3 in Chapter III.

(ii) Mimamsa Nyayaprakasa of Apodeva.

Special Part.

1. *Mimamsa*—

Paper I.

Taittiriya Samhita with Sayana's Bhasya, Khanda I, Prapathaka.

2. Apasthamba Srautha—Sutra with Rudradatta's Vritti—Prasnas I to V (both inclusive).

Paper II.

Bhatta Dipika from beginning to end of the third Pada of the third.

Adhyaya (Chapters I to III).

Aitreya Brahmana with Sayana Bhasya, fourth Panchika.

Paper III.

Bhatta Dipika from the fourth Pada of Chapter III.

3. *Nyaya*—

Paper I.

Gauthama's Nyaya sutras with Vatsyayanas Bhasya, Chapters I and II.

Kanada's Vaiseshika sutras, Text only.

Paper II.

Jagadisa's Panchalaksani and Simhavyaghri.

Gadadhara's Caturdasalaksani.

(*a*) From beginning up to the end of the Dvitiyasvalaksana.
(*b*) Kutaghatitalaksana.
(*c*) Kutaghatitalaksana.
(*d*) Vyadhikarana-Dharmavacchinanabhava-Khandana grantha.

Paper III.

Gadadhara's Paksata; SARVABHIMANTA.

Gadadhara's Siddhantalaksana (whole).

4. *Vyakarana*—

Paper I.

Paribhasandusekhara (whole).

Paper II.

Praudamanorama, Text from beginning to end of Avyayibhava.

Siddhantakaumudhi Krt and Taddhita Sections.

Paper III.

Sabdaratna from beginning to end of Stripraayaya.

5. *Sahitya*—

Paper I.

Bana's Kadambari from Mahasveta Vrttanta to the end of Purvardha.

Sri Harsha's Naisadha, cantos 10 and 11.

Kumarasambhava, cantos 1 to 5 (inclusive).

Nilakanthavijaya of Nilakantha Dikshitha, Uchvasa III only,

Paper II.

Sakuntala.

Malatimadhava.

Mrcchakatika.

Mudraraksasa.

Paper III.

Dandin's Kavyadarsa—Pariccheda I only.

Kuvalayananda (whole).

Siddhanthakaumudhi—Taddhitha—Apatyadhikara only.

Dhananjaya—Dasarupaka with Avaloka.

6. *Jyotisha*—

Paper I.

Bhaskara's Rijaganita.

Bhaskaracarya's Lilavati—whole, omitting Parkarmastaka, Kuttaka and Pasa.

Paper II.

Kshetramiti by Durgaprasada, Books III and IV only.

Trikonamiti.

Paper III.

Golaprakasa. Capiyatrikonamiti and Golarekhaganita only.

7. *Ayurveda*—

Paper I.

Astangahrdaya, Sarira, Nidana and Cikitsa sthanas.

Paper II.

Carakesamita, Sutra and Sarira Sthanas.

Pratyaksa Sarira by Mahamahopadhyaya Gananath Sen.

Paper III.

Rasaratnasamuccaya, first eleven chapters.

B.A.

SANSKRIT.

PART III.

Branch VIII—Indian Music (Main).

Ancillary Syllabus in Sanskrit—1960.

(i) Kalidasa's Raghuvamsa, Canto XII.

(ii) Vikramarkacarita—Stories 1 to 4. Pages from about 25 to 40

(iii) *Prosody*—

Elements of Sanskrit prosody—distinction into Matra, Vrtta and Gana Vrtta—The characteristics of the Vrttas—Anustubh Upajati, Vamsastha, Vasantatilaka, Malini, Sikharini, Mandakranta, Sardulavikridita, Sragdhara, Dandaka, Arya—Examples of the more musical metres: Campakamala, Dodhaka and Totaka, Bhujangaprayata, Mattamayura, Tunaka and Citra, Panca-Camara, Mattakrida, Tanvi, Kraunchapada. Consult: Vrttaratriakara, Srautabodha, Candomanjari.

(iv) 30 Sanskrit Musical Compositions—

I. Jayadeva—

(i) Pralayapayodhi jale—Introductory Dasavatra Astapadi.

(ii) Lalitalavanga—First Astapadi.

II. Narayanatirtha's Tarangas—

(iii) Govinda Ghatya—Bhairavi.

(iv) Puraya mama kamam—Bhilahari.

III. Sadasiva Brahmendra—

(v) Manasa Sancarare (Sama).

(vi) Bruhin Mukundeti.

(vii) Tunga tarange.

IV. Svati Tirunal—

(viii) Sarasijanabha myrare—Todi.

(ix) Sarasaksa Paripalaya—Pantuvarali.

(x) Kripaya palaya Saure—Carukesi.

(xi) Vande Sada Padmanabham—Navarasa Kannada.

V. Syama Sastri—

(xii) Kanaka Saila Viharini—Punnagavarali.

(xiii) Sankari Sam Kuru—Saveri.

VI. Snanasami Sastri—

(xiv) Sri Lalite—Bhairavi.

VII. Tyagaraja—

(xv) Girirajasutatanaya—Suddhabangala—Ganesa.

(xvi) Varasikhivahana—Supradipa—Subrahmanya.

(xvii) Nadatanumanisam—Cittaranjani—Siva.

(xviii) Samajavaragamana—Hindola—Krishna.

(xix) Sri Narada—Kanada—Narada.

(xx) Janakiramana—Sudhasimantini—Rama.

(xxi) Jayamangalam—Ghauta—Mangalam.

VIII. Muttuswami Dikshitar—

(xxii) Siddhivinayakam—Cannara or Shanmukhapriya—Ganesa.

(xxiii) Vinapustakshidharini—Vegavahini—Saraswati.

(xxiv) Mahalakshmi karunarasalahari—Madhava Manohari (raga)—Lakshmi.

(xxv) Sri Subramanya Nyanamaste—Kambhoji—Subrahmanya.

(xxvi) Sri Parvatiparamesvaran—Barali—Parvati and Parameswara.

(xxvii) Sri Dakshinamurte—Sankarabharana—Dakshinamurthi.

(xxviii) Kamalamba bhajare—Kalyani—Devi.

(xxix) Suryamurte—Saurashtra—Sun.

(xxx) Mamava Pattabhiram—Maniranga—Rama.

B.A. and B.Sc.

1960-61

PART II (a)—HINDI—1960

Paper I—Prescribed Text-Books I—Poetry—

***Detailed Study*:**

1. **B. A. Poetry Selection—1958—Published by the University of Madras.**

2. Milan—Ram Naresh Tripathi.

3. Sudama Charit—Narottam Das.

Paper II—Prescribed Text-books II—Prose and Drama—

Detailed Study—

1. Hindi Gadya Sanchaya—Mahairu Prasad (Publishers—Ram Narayan Lal, Allahabad).

2. Raksha Bandhan—Hari Krishna Premi.

3. Chaturyuga (One Act Plays)—Prabhat Shastri. (Kaushambi Prakasham Darakanj, Allahabad).

For reference only—

1. Hindi Bhasha Aur Sahitya by Udai Narayan Tiwari.

2. Kavya Pradeep—Ram Bahori Shukla. (Only those Alankaras and Chandas as per Syllabus).

3. Vyakaran Pradeep—Ram Deo.

PART II (b)—HINDI—1961.

Paper III—

Non-detailed Texts—

1. Nirmala—Prem Chand.

2. Katha Kaumudi—Dakshina Bharat Hindi Prachar Sabha, Madras.

For reference only—

1. Vigyan Ke Chamatkar—by Bhagwatiprasad Srivastava (Published by Gyan Mandal, Ltd., Kashi).

2. Nibandh Prabodh by Dr. Ram Ratna Bhatnagar (Published by Kitab Mahal, Allahabad).

B.A.

PART III—BRANCH XII—HINDI.

Examination for Papers I and II to be held in 1960.

Paper I—

History of Hindi Literature—

1. Hindi Sahitya Ka Itikas—by Dr. Ram Kumar Verma. (R. N .Lal).

2. Hindi Kavya Vimarsh—by Sri Gulab Rai.
3. Hindi Bhasha aur Sahitya—by Shyam Sundar Das.
4. Hindi Sahitya Ka Itihas—by Pt. Ram Chandra Shukla.
5. Kavya Charcha—by Prof. Lalita Prasad Sukal.

Paper II—

Indian History and Culture—

1. Itihas Pravesh—Jaichandra Vidyalankar.
2. Bharateeya Sankriti—Dr. Baldev Prasad Mishra.

For reference only—

1. History of India—K. A. Nilakanta Shastri.
2. The Legacy of India—Edited by Garret.
3. Bharateeya Sanskrit—Sri Ram Dhari Singh " Dinkar."
4. Bharatvarsh Ka Sankshipta Itihas—University of Madras.

Examination for Papers III to VI to be held in 1961.

Paper III—

Prescribed Text-books—I (Poetry)—

1. Kavya Kalanidhi—Baugeeya Hindi Parishad, Calcutta.
2. Kavitavali (Omitting Uttar Kanda)—Tulasidas.
3. Gunjan—Sumitra Nandan. Pant.

Paper IV—

Prescribed Text-books—II (Prose and Drama)—

1. Gadya Kusum Mala—Ram Narayan Lal & Co., Allahabad.
2. Ajatshatru—Jai Shankar Prasad.
3. Gaban—Premchand.
4. Hindi ki Amar Kahaniyan—Edited by Jagannath Prasad Sharma.
5. Reshmi Tie—Ram Kumar Verma.

Paper V—

Prosody and Poetics—

1. Kavya Pradeep—Ram Bahori Shukla.
2. Alankar manjoosha—Lala Bhagwan Deen.
3. Kavya Parichaya—by Chandra Shekar Shastri and Ram Chandra Sukla "Saras."

Paper VI—

History of Language and Grammar—

1. Hindi Bhasha Aur Sahitya—Shyam Sundar Das.
2. Vyakaran Pradeep—Ram Deo (Hindi Bhavan, Allahabad).
3. Sankshipta Hindi Vyakaran—Kamta Prasad Guru.

(*Note.*—All the papers shall be set and answered in Hindi.)

B.A. & B.Sc.

MARATHI.

PART II (*a*)—1960.

(*Papers I and II*).

Paper I—(Poetry, History of Literature, Prosody and Poetics).

For Detailed Study.

Poetry—

1. Moropant—Virathparva.
2. Pacha Kavi—Edited by Rajadhyaksha.

History of Marathi Literature—Books recommended—

1. Maharashtra Saraswat (Chapters on Dyaneshwar, Waman by Bhave Pandit, Tukaram and Moropant).
2. Marathi Sahityachi Rupareshа by Dr. U. P. Dandekar.

Prosody and Poetics—Books recommended—

1. Alankara Chandrika by Gore, G. U.
2. Vrittadarpan by P. B. Godhole.

Paper II—(Prose, Drama and Grammar)—

For Detailed Study.

Prose—

Marathi Nibandha by R. S. Walimbe.

Drama—

Punya Prabhava by Gadkari.

Grammar—

Books recommended—Praudhabodha Vyakaran by R. B. Joshi.

PART II(*b*)—1961.

(*Paper III*).

Paper III—(Non-detailed text, passage or passages in English for translation into Marathi, General Composition having reference to modern thoughts)—

Non-Detailed Text.

1. Daulat by N. S. Phadke.
2. Parijat—edited by V. S. Khandekar.

B.A.

PART III—BRANCH XII—MARATHI.

Examination for Papers I and II to be held in 1960.

Paper I—History of Marathi Literature—Books recommended—

1. Maharashtra Saraswat by Bhave.
2. Pradakshina—Edited by A. A. Kulkarni.
3. Arvachina Marathi Sahitya—Nene.
4. Marathi Sahityachi Ruparesha by Dr. U. P. Dandekar.

Paper II—History and Culture of Maharashtra—

Books recommended—

1. Maharashtracha Samskritic Itihasa by Dr. S. D. Pendre.
2. Marathi Riyasat by Sardesai.
3. Tirtharupa Maharashtra Parts I and II by Mahadeshartri Joshi.

Examination for Papers III to VI to be held in 1961

Paper III—Poetry (ancient and modern)—Prescribed Text-books I.

1. Dyaneshwari 12th Adhyaya.
2. Mukteshwar—Sabhaparva.
3. Keshavasuta—Keshana Sutanchi Kavita.
4. Tilak—Tilakanchi Kavita.
5. Bee—Phulanchi Orjala.

Paper IV—Prose and Drama—Prescribed Texts II.

1. Adnyapatra by Ramachandra Pant Amatya.
2. Amachya Deshachi Sthiti by Chipplaunkar.
3. Nibhandha Sangraha—Part I by Agarkar.
4. Vidyaharam by Uhadilkar.
5. Ekach Pyala—Gadkari.

Paper V.—Prosody and Poetics—Books recommended—

1. Chandraihana by Patmardhan.
2. Abinana Kavyaprahash by Jog.
3. Kavyalochana by Kelkar.

Paper VI—History of Language and Grammar—Books Recommended—

1. Marathi Bhasha—Udgama Ani Vikasa by Kulkarni, K. P.
2. Sabnis—Adhunik Marathiche Ucehatar Vyakaran.

B.A. & B.Sc.

PART II—FRENCH.

Papers I and II to be taken in 1960 and Paper III in 1961.

Drama—

Corneille's Horace.

Poetry—

Oxford Book of French Verse, 13th to the 20th century—Numbers 146 to 202.

Prose—

Le livre de mon ami—by Anatole France (O.U.P.)

French Tales of Our Time—By W. Lough Harrap.

Contes Humoristiques—A. L. Carre. (University of London Press.)

French Tales of Our Time by W. Lough Harrap (to be reserved for the third year).

Note.—The Papers I and II taken at the end of the second year of the three-year degree course will follow the model of the same papers in the two-year degree course. The examination in the third year should contain passages for translation from the text (50 marks), one essay in English (20) and one essay in French on the subject-matter or the texts (30), a choice being given of three essays in English and three essays in French.

B.A.

PART III—BRANCH XII—FRENCH—1961.

Drama—

Moliere's L' Avare.

Racine's Athalie.

V. Hugo's Hernani.

Poetry—

Oxford Book of French Verse. 13th to the 20th century—Numbers 198 to 231.

Prose—

Colonel Chabert, Gobseck—Honore de Balzac.
Harrap.
Le Barrage—Bordeaux.
Cheque disent les livres. By Emile Faguet. O.U.P.

History of French Literature from the Renaissance to Modern times.—The following books are recommended:—

Cazamin's History of French Literature. (O.U.P.)
History de la langua francaise. By Ch. des. Granges.
Saintsbury's History of French Literature.
Author's Life and works to be studied: Victor Hugo.
Horace: Odes. Bk. II (To be reserved for the 3rd year).
Cicero: Pro Roscio.

B.A. & B.Sc.

PART II (a)—LATIN—1960.

(*Papers I and II*).

Cicero: Pro Roscio Amerino.

Vergil: Aeneid, Bk. I.

PART II (b)—LATIN—1961.

(*Paper III*)

Horace: Odes, Bk. IV.

NOTE.—Papers I and II in Part II will follow the model of papers in Part II of the two-year degree course. Paper III will be a paper of three hours, containing passages for translation from the prescribed text (50 marks), one unseen passage for translation from Latin into English (25) and one essay on the subject-matter of the texts—a choice of three being given.

PART III—BRANCH XII—LATIN—1961.

Drama—

Miles Gloriosus of Plantus Adelphi of Terence.

Proce—

Cicero's Pro Legs Manillia.

Tacitus: Annals, Bk. I.

Poetry—

Vergil: Aeneid, Book VIII.

Horace: Odes, Book III.

Juvenal: Satire X.

History of Latin Literature.

Study of a prescribed author's life and works: Cicero.

B.A. & B.Sc.

PART II (a)—GERMAN—1960.

Papers I and II.

1. Grammar—Wrenn—Krips. (Harrap). An Intermediate German course (40 poems).

2. Modern German Short Stories. Second Series by H. F. Eggling (O.U.P.)

3. Wilhelm Tell by Schiller.

PART II (b)—GERMAN.

Paper III—1961.

Egmont by Geethe.

PART II—SYRIAC.

I Paper: Prose.

II Paper: Poetry.

The Papers I and II are to be given at the end of the second year of the course.

III Paper: Translation and History.

The III Paper is to contain translation (3 questions), History of Syriac Literature (1 question), and the History of Syria and Palestine and of the Syrian Church of Kerala (1 question). The III Paper is to be given at the end of the third year of the course.

Text-Books.—

(*a*) Text-Books for the I Paper and the II Paper: 1960—

1. Prose: (1) Selections from Syriac Prose for the B.A. classes (St. Joseph's Press, Mannanam): the whole.

(2) Arayathinal (Aramaic Grammar) Exercises 11 to 37 (both included).

2. Poetry: Readings in Syriac Poetry for the B.A. classes (St. Joseph's Press, Mannanam): the whole.

Grammar—

1. Syriac Grammar by Fr. Gabriel, T. O. C. D. (St. Joseph's Press, Mannanam).

2. Aramaic Grammar by Rev. Thomas Arayathinal, M.O.L. (St. Joseph's Press, Mannanam).

(*b*) Text-Books for the III Paper, 1961—

1. Prose, Poetry and Grammar: the same as those for the I paper and the II paper (1960).

2. History of the Syriac Literature: Wright (A & C. Blackie, London.)

3. History of the Syrians and of the Syrian Church in Kerala:

(1) Early History of Syria and Palestine by Lewis Boyles, Petton, D.P.H. (John C. Nimmu, 14, King William Street, Strand, London).

(2) St. Thomas the Apostle, 19th Centenary Souvenir of the Landing of St. Thomas in Cranganore by Dr. P. J. Thomas, Dr. Joseph Placid, Dr. J. Ettumanookaran and Mr. K. E. Job, M.A.,L.T. (Mar Lousie Memorial Press, Ernakulam).

(3) The Two Apostles of India by A. C. Perumalil, S.J. (Catholic Mission Press, Ranchi).

(4) The Syrian Church of Malabar and its Cultural Contributions by J. Placid, PH.D., D.D., D.C.L. and H.E. Job, M.A., L.T.

(5) History of the St. Thomas Christians, Vols. I and II by Fr. Bernard, T.O.C.D. (St. Joseph's Press, Mannanam.)

(6) The Indian Church of St. Thomas by E. M. Phillip (C.M.S. Press, Kottayam).

PART III—BRANCH XII—SYRIAC.

GROUP A—1961.

GROUP B—1960.

Details of the Papers.—There are six papers in all, each of 3 hours' duration and each carrying 100 marks. Four of these papers for the main subjects under Group A and the remaining two papers are for the subsidiary subjects under Group B.

Group A—

I Paper: Prose.

II Paper: Poetry.

III Paper: Prescribed author.

IV Paper: Grammar, Prosody and History of Syriac Literature.

Group B—

V Paper: History of Syria and Palestine up to the 14th Century included.

VI Paper: History of the Syrian Church in India.

The papers for Group A will be for the examination at the end of the 3rd year, and those for Group B will be for the examination at the end of the 2nd year.

(*a*) Text-books for the four papers under Group A, 1961—

1. *Prose*—

(1) Exodus (whole).

(2) Acts of the Apostles (whole).

(3) Epistle of St. Paul to Thimothy (whole).

(4) Life of St. Ephoome (St. Joseph's Press, Mannanam).

2. *Poetry*—

(1) St. Ephrem: Morceaux Choisis: Pages 34 to 73. (Dominican Fathers' Mosul).

(2) Isaac of Antioch: Morceaux Choisis: Pages 150-172 (Dominican Fathers, Mosul).

(3) Prescribed author's life and works.

St. Aphrastis: His complete works: Patrologia Syriac a Series, first part, first volume, whole comprising 22 homilies, and second volume 23rd homily, pages 1 to 150—Edited by R. Griffin, published by Firmin—Didot et Socii, via Jacob, 56 Paris.

(4) Grammar—

(1) Syriac Grammar by Fr. Gabriel, T.O.C.D. (St. Joseph's Press, Mannanam).

(2) Aramaic Grammar by Rev. Thomas Arayathinal, M.O.L. (St. Joseph's Press, Mannanam).

(5) History of Syriac Language and Literature—

(1) Wright (A & C, Blackie, London).

(2) Tappenni (Beirut).

(*b*) Text-books for the 2 papers under group B for 1960—The same as those for B.A., Part II.

PART II—HEBREW.

I Paper—Prose.

II Paper—Poetry.

III Paper—Translation and History—

The III Paper is to be given at the end of the Third year of the course. It will cover translation (three questions), History of Hebrew Literature (one question) and History of the Hebrew people (one question).

Text-books—

(*a*) Text-Books for the I and II Papers, 1960—

Prose—The First Book of Samuel.

Poetry—

(1) Psalm 78.

(2) Proverbs: Chapter XV.

(3) The Prophecy of Nahum.

Grammar—

(1) Student's Hebrew Grammar by Michael Adler, B.A. (David Nutt, London).

(2) Hebrew Grammar by Davidson.

(*b*) Text-Books for the III Paper, 1961—

1. *Poetry, Prose and Grammar*—The same as those r the I and II papers (1960).

2. *History*—

(1) History of Hebrew Literature by Michael Adler.

(2) The Hebrews, their history and government by Professor McCardy (John C. Nimmu, 14, King William Street, Strand, London).

(3) Early History of Syria and Palestine by Lewis Boyles Petton, D.P.H. (John C. Nimmu, 14, King William Street, Strand, London).

B.A.

PART III—BRANCH XII—HEBREW.

GROUP A—1961.

GROUP B—1960.

Details of the Papers—There are six papers in all, each of 3 hours' duration and each carrying 100 marks. Four of these papers are for the main subjects under Group A, and the remaining two papers are for the subsidiary subjects under Group B.

Group A—.I Paper: Prose; II Paper: Poetry; III Paper: Prescribed author; IV Paper: Grammar, Prosody and History of Hebrew Literature.

Group B—V Paper: Anc: History of Palestine; VI Paper: Dispersion of the Jews (Assyrian, Babylonian, Persian and Roman Empires).

(*a*) Text-books for Group A, 1961—

1. *Prose*—
   (1) The Book of Exodus.
   (3) First Book of Kings, Chapters I to X (both included).
2. *Poetry*—
   (1) Book of Sphonias.
   (2) Book of Mica.
3. *Prescribed author*: Jeremeias, the Prophet, Life and Work.
4. *Grammar*—
   (1) Student's Herbrew Grammar by Michael Adler.
   (2) Hebrew Grammar by Davidson.
   (3) Hebrew Tenses by Davidson.

(*b*) History of Hebrew Literature by Michael Adler.

Group B—

1. Early History of Syria and Palestine by L. B. Patton.

2. The Hebrews, their history and government by Prof McCardy John C. Nimmu, 14, King William Street, Strand, London).

B.A. and B.Sc.

II PART (a)—TAMIL—1960.

Paper I.

Poetry and Grammar.

Poetical Selections—

1. Tiruppanarruppadai	..	26 lines.
2. Purananuru	.. ..	200 lines from Kapilar's Verses.
3. Kuruntogai	.. ..	50 lines.
4. Tirukkural	.. ..	100 lines (Kudiceyalvagai, uzhavu, Iravu, Nathanaru and Iravaccam).
5. Silappadhikaram ..	..	216 lines (Kadukann Kathai).
6. Cintamani	.. ..	312 lines (Pathumaiyar Ilambakam).
7. Periapuranam	.. ..	42 stanzas (Anaya Narayanar Puranam).
8. Kambaramayanam	..	400 lines (Kaikeyi Soolvinaip Padalam).
9. Bharathiar—Kuil Pattu ..		160 lines.
10. Tanippadalgal	.. ..	80 lines.

Paper II.

Prose detailed—

1. Madurai Tamil Sanga Malar (Published by Madurai Tamil Sangam).

2. Katturai Pozil by A. M. Saravana Mudaliar (Published by Manivachaga Nilayam, Tiruchirappalli).

Drama—

Sakuntalam by Maraimalai Adigal (Publishers: S.I.S.S.W.P. Society, Madras).

PART II (b) TAMIL—1961.

Paper III—

Translation, Composition and a General History of Tamil Literature.

Books recommended for 'A General History of Tamil Literature'—

1. Murkalap-Pirkalat Tamil Pulavar by Maraimalai Adigal (S.I.S.S.W.P. House, Madras).

2. Sangakalattamilum Pirkalattamilum by Dr. Swaminatha Ayyar (Theagaraja Vilas, Tiruvateeswaranpet, Madras).

3. Ilakkiya Varalaru by K. Subrahmanya Pillai (S.I.S.S.W.P. House, Madras).

NOTE 1.—Questions should not be based on these texts, but should be of general nature on the History of Tamil Literature. Questions should not be asked to fix the dates of Poets, etc.

NOTE 2.—There shall be three Parts in the Question Paper: the first Part on Translation from English to Tamil, the Second Part on General Composition and the third Part generally on 'A History of Tamil Literature'. The marks shall be distributed in the proportion of 40 : 30 : 30.

B.A.

PART III—BRANCH XII—TAMIL.

(*Papers I and II*—1960.)

Paper I.

History of Tamil Literature.—History and Developments of various trends and their changes in the subject-matter, idiom, rhythm and versification and other modes of expression generally, all through the ages and in particular from age to age or century to century:—

1. The condition of literature as may be gleaned from Tolkappiyam.

2. Sangam period: Characteristics of Sangam Literature—the conception of Tokai and the absence of Epic before Silappadhikaram.

3. The eighteen ethical works—their general trends and characteristic features—inter relations—Influence of Kural and its place in Tamil Literature—The relationship between Kilkkanakku and Melkanakku—the later Ethical Literature and their relationship with Kilkanakku.

4. Growth of Epics—Silappadhikaram—its relationship with Sangam Age—its influence on later day literature—its relationship with Manimekalai.

5. The so-called major and minor five epics—a criticism of this conseption from the historical and literary point of view.

6. Kamba Ramayanam—its age—characteristic features—importance and influence.

7. Periyapuranam—its age—characteristic features—importance and influence.

8. The later Sthalapuranas.

9. The various kinds of prabandams—their rise and development in general with an explanation of the influence shaping them.

10. The folk song influencing literature from time to time.

11. The history of drama—Kuravanchi, Pallu, Nondi Natakam, Kirthanai natakam—Foreign dramas and their influence —Modern Dramas and Radio Dramas and Cinemas.

12. Prose—Development from the earliest Age to the modern time.

13. Modern trends and modern kinds of literature.

14. Religion and Philosophy in Tamil literature—their development and varieties.

15. The general trends of the Sangam age, of the Pallavà age, of the later Cholas, of the later Pandyas, of the Vijayanagar period and of the period of the Western influence.

16. The contributions of the various religions and their institutions (Mutts), etc., to Tamil literature.

Books recommended—

1. K. S. Srinivasa Pillai—Tamil Varalaru, Parts I and II.

2. K. Subramania Pillai—Ilakkiya Varalaru.

3. Somasundara Desikar—16th Century Tamil Poets; 17th Century Tamil Poets.

4. Pandai Tamil Ilakkiya Varalaru by Sadasiva Pandarattar (*a*) 300—600 A.D.; (*b*) 13th, 14th and 15th Centuries.

Paper II.

History of Tamil Nad and Culture.

I. History—

1. Sources of our study.

2. Influence of geography on history—Historical divisions of the country in the various periods.

3. The culture of the earliest inhabitants—Old Stone Age—New Stone Age—Race types—Linguistic and Cultural affinities—Megalithic monuments—Rock paintings—painted pottery, etc.

4. Pre-Sangam history and Culture—Sangam Age—Foreign contacts.

5. Post-Sangam period—Kalabhras—Foreign influence—Pallavas conflict with the North and the South—the Pandyas, Mutharaiyas, Irikkuvel ; the Religious condition—Village community and Local Self-Government Polity.

6. The Later Cholas—their growth—Conflict with other powers—their influence in and outside India—The Rise of the Later Pandya Power—the conflict of the Cholas, Pandyas, Hoysalas and Yadhavas.

7. The fall of the Tamil Political Power—influence of Vijayanagar Rulers, Nayaks, Marattas—the development of Western and Muslim influence—the Palayagars.

8. The struggle for Freedom—Gandhian Era.

II. Culture—

The Social and Economic conditions—Literature—Religion and Philosophy—Painting—Sculpture—Iconography—Architecture—Music and other Fine Arts—Handicrafts—Polity, Custom and Law, all forming a distinctive Culture, developing from Age to Age, influenced by and influencing others.

Books recommended—

1. Ten Indiyach-chirppankal by Kanakarathnam.
2. Alagu Kalaikal by Seeni Venkataswamy.
3. South Indian History by K. Nilakanta Sastry.
4. Tamils 1,800 years ago by Kanakasabai Pillai.
5. Contributions of South India to Indian Culture by S. K. Aiyangar.

NOTE.—The Questions on Political History shall bear 40 marks and the questions on culture shall bear 60 marks.

(*Papers III to VI*—1961.)

Paper III.

Prescribed Texts I—

1. Perumbanarruppadai—248 lines.

2. Tirukkural-Araciyal--500 lines.

3. Purananuru, Vol. 51—100—635 lines.

4. Chilappadhikaram—(*a*) Urkann Kathai, (*b*) Adaikkalakkathai and (*c*) Kolaikkalakkathai—658 lines.

Paper IV

Prescribed Texts II—

1. Kambaramayanam—Katchi, Ninthai and Urukkattu-patalams—1,104 lines.

2. Villiputturar Baratham—Kandavathahanaccarukkan—304 lines.

3. Tiruvilaiyadalpuaranam—Paranchothiyar—Viraguvitra patalam, total 280 lines.

4. Tiruvembavai and Tiruppavai—200 lines.

5. Sekkilar Pillaittamil—1st five in each of the 10 paruvams—200 lines.

Paper V

Grammar, Prosody and Poetics—

1. Nannul Kandigai urai—Arumuga Navalar.

2. Yapparunkalakkarikai—Old Commentary.

3. Dandiyalankaram—Porulani Iyal—General study without details of classifications.

NOTE.—The questions on Grammar shall bear 40 marks: Questions on Prosody 30 marks and Questions on Poetics 30 marks.

Paper VI

History of the Tamil Language and Elements of the Dravidian Comparative Grammar—

1. *Syllabus for the History of the Tamil Language*—

General—The place of Tamil in the Dravidian family of Languages—Its high antiquity—Its geographical area in ancient times—the Sentamil and Koduntamil Countries—Very early cultivation of Tamil—The Three Sangams.

The Periods of Tamil Language—The Old or Sangam Tamil—The Mediaeval Tamil and the Modern Tamil—Illustrative Literature

of each Period—Grammars of the different Periods—The extent of Foreign influence on Tamil Grammars.

Phonology.—Vowels—Their realtionship to the primitive Dravidians. Vowel system—History of Vowels—Accent and, Emphasis—Rising, Falling and Vanishing Accents—Influence of accent on Word change and in Prosody Alapedai—Mutation of Vowels—Vowel Harmony—Vowel Sandhi—Clides.

Consonants.—Their relation to the Primitive Consonants—History of Consonants—Mutations of Consonants, Palatalization, Dentalization, Voicing, Unvoicing, Consonant length, Assimilation, Alapedai—Consonantal Sandhi.

Laws of Tamil Syllabation.—Difference between Tolkappiam and Nannul—Light on the Nature of Loan words.

Morphology.—Historical treatment in the Old and Modern Tamil of the following—Nouns—Pronouns—Case, the Verbs, The Passive Voice, The Moods—Imperative, Infinitive, Subjunctive. The Tenses—The tense-formation—The principles of their use—Negative particle. The Relative and Verbal Participles.

Word Building.—By Composition—Compound words (Tokai, Ummai, Uvamai, etc.)—By Derivation—By Root creation—Back formation—Double bases, etc.

Vocabulary—The general character of Tamil Vocabulary at different Periods—Borrowings—Their causes—Doublets—Telugu and Kannada Elements in Tamil—Loss of Old words—Nature and extent—Sanskrit words—Tatsamas—Tadbhavas (Rules regarding these)—Prakrit borrowings—Manipravala style—Other borrowings (Hindi Portuguese, English, etc.)—Hybrids—Tests for distinguishing Loan words.

Semantics—Changes in the meaning of words—Elevation Degradation, Specialization and Generalization from age to age.

Syntax.—Historical. Study of the order of words in a sentence—Deviation from the Normal—Causes—Difference between the Syntax of Poetry and Prose—Foreign influence in Tamil Syntax.

2. *Syllabus for the Elements of the Dravidian Comparative Grammar: Dravidian Languages.*—The Dravidian Group of Languages and their chief characteristics Enumeration of the Dravidian Languages.

Dravidian Phonology.—The Primitive Dravidian Parent Language—Vowel System—Changes—Accent—Harmonic sequence of Vowels—System of Consonants—Origin of Cerebrals (Retroflex) —Dialectic interchange of Consonants—Euphonic permutation of Consonants—Sandhi—Nasalization Prevention of Hiatus—Dravidian Syllabation.

Dialect.—Sentamil and Koduntamil.

Morphology.—The Noun.

Gender—Dravidian Nouns divided into two Classes denoting Rationals and Irrationals.

Number—Singular and plural—No Dual—Singular—Masculine, Feminine and Neuter—Plural—Principles of pluralization.

Case—Principles of Case-formation—Dravidian Cases—Comparison with Sanskrit Cases.

The Pronoun.—Pronouns of the First and Second Person —Comparison of Dialects—The Reflective Pronoun—Pluralization of the Personal and Reflective Pronouns—Demonstrative and Interrrogative Pronouns—Their bases—Demonstrative and Interrogative Adjectives and Adverbs—Honorific Demonstrative Pronouns.

The Verbs.—Structure of the Dravidian Verbs—Roots used either as Verbs or Nouns—Formative Particles often added to Roots —Classification of Verbs.

Casual Verb—their formation.

Frequentative Verbs.

Conjugational System—Formation of the Tenses—Their significance and force—The Present Tense—The Preterite Tense—The Future Tense—The Verbal and Relative Participles.

Formation of Moods—Methods of forming the Conditional, the Imperative and the Infinitive.

The Voice—Active and Passive—The Negative Voice—Combination of Negative Particles with Verbal themes—The Dravidian Negative Particles.

Formation of Verbal Nouns, Derivative Nouns and Abstract Nouns.

Comparative Syntax.—The Syntax of the several Language compared—The extent of Foreign influence over the Syntax of the several Languages.

NOTE.—The Questions on the History of the Tamil Language shall carry 50 marks and the Questions on the Elements of the Dravidian Comparative Grammar shall carry 50 marks.

B.A. and B.Sc.

PART II (*a*)— TELUGU—1960.

(*Papers I and II*—1960).

Paper I.

A. Old Poetry—

1. Tikkana—Udyogaparvam—Krishna Rayabaram—Cantos 3 and 4.

2. Srinatha—Haravilasam—Chirutondanambi Katha—Canto 2.

3. Dhurjati—Sri Kalahasti Mahatmyam—Nalkiruni Katha.

B. Modern Poetry—

D. V. Krishnamurthy: Sri Sukanasopadesamu (1952), (author, V. R. College, Nellore).

Paper II.

C. Drama—

1. Vedam Venkataraya Sastry—Vikramorvasiyam (V. Venkataraya Sastry Bros., 4, Mallikeswara Gudi Lane, Linghi Chetty St., Madras-1.)

2. M. Upendra Sarma: Tikkana (Lecturer in Telugu, Hindu College, Guntur).

D. Prose—

Duvvuri Ramireddi—Saraswata Vyasamulu (Kavikokila Publications, Nellore.) (Portions prescribed: From the beginning, i.e., Section 1, Kavito 13—Natakamu Charitra both inclusive).

E. Grammar, Prosody and Poetics—

According to the Syllabus prescribed.

PART II (*b*)—TELUGU—1961.

Paper III—1961.

F. Non-detailed Prose—

Chidanandananda Svami—Sri Rama Krishnuni Jeevita Charitra (Sri Ramakrishna Seva Samajam, Morrispeta, Tenali.)

B.A.

PART III—BRANCH XII—TELUGU.

(Papers I and II—1960).

Paper I.

I. *History of Telugu Literature*—

The following books are prescribed for consultation only:—

1. Khandavilli Lakshmiranjanam—Andhra Vangmaya Charitra sangraham (author, Head of the Department of Telugu, Osmania University, Hyderabad.)

2. Vanguri Subbarao—Andhra Vangmaya Charitra.

(V. Narasimha Rao, Kamala Kuteer, Narasapur, West Godavari district.)

Paper II.

2. *History of Andhra Desa and Andhra Culture*—

According to the Syllabus prescribed.

Inscriptions—(1 to 10) published by Jayanti Ramayya Pantulu (Telugu Academy, Kakinada.)

(Papers III to VI—1961).

Paper III.

3. *Prescribed Text books II.*—

1. *Old Poetry*—

1. Nannichoda—Kumara Sambhavam, Parvatiparinayam, Cantos 7 and 8.

2. Palkuriki Somanatha—Dvipada Panditaradhya Charitra—Sura Sanamma Katha.

3. Pingali Suranna—Kalapurnodayamu—Cantos 1 and 2 (Without the avatarika or the introductory verses.)

4. Kankanti Paparaju—Uttara Ramayanamu—Sita Vasavasagamanamu.

2. *Modern Poetry*—

1. T. Sivasankara Sastri—Dikshita Duhita (Sarasvati Niketanamu, Vetapalem, Guntur Dt.)

2. Viramanidu by Mudivarti Kondamacharyulu (1948), Publishers: Vadlamudi Ramiah, Nellore.

Paper IV.

4. *Prescribed Text-books II*—

1. *Drama*—

1. V. Subbarayudu—Venisamharamu. (V. Eswara Vara Prasada Rao, near Government Training College, Innespeta, Rajahmundry, E. Godavari Dt.)

2. Chilakamarti Lakshminarasimham—Gayopakhyanam (Kondapalli Viravenkayya, Book Sellers, Rajahmundry, East Godavari district).

2. *Prose*—

Veturi Prabhakara Sastri—Meegada tarakalu (Veturi Sankara Sastri, Arsha Rasayana Sala, Muktyala, Krishna Dt.)

Paper V.

5. *Grammar, Prosody and Poetics*—

1. Chinnayasuri Balavyakaranamu—Tatsama, Acchika and Kriya Paricchedamulu.

2. Bahujanapalli Sitaramacharyulu—Proudha Vyakaranam—Sandhi, Sabda, Karaka and Kriya Paricchedamulu.

3. Narasabhupaliyam—Cantos 3 and 5.

4. Appakavyamu—Canto 3.

5. K. Ananatacharyulu—Dasarupakamu.

Paper VI,

6. *History of Telugu Language and Elements of the Comparative Grammar of the Dravidian Languages according to Syllabus prescribed.*

B.A.

PART III.

Branch VIII—Group B—Telugu—1959 and 1960.

1. **Pallaki Seva Prabhandam: Copies can be had of Sri P. Sambamurthy, Music Department, University of Madras.**

2. Telugu introductions to Kshetraya Padams.—

(a) Edited by Sri Vissa Appa Rao.

(b) Edited by Dr. G. V. Sitapathi and published by the Maharajah of Pithapuram: Copies can be had of Dr. G. V. Sitapathi, 17, Devaraya Mudali Street, Madras-5.

B.A. and B.Sc.

PART II (a)—KANNADA—1960.

Paper I.

1. *Old Poetry*—

(a) Pampa Bharata—12th Aswasa (221 stanzas).

(b) Gada Yuddha by Ranna: 7th and 8th Aswasas (68 + 67 = 135 stanzas).

2. *Mediaeval Poetry*—

(a) Jaimini Bharata: Sandhis 1, 2 and 3 (omitting stanzas 7, 9, 10 and 29 in Sandhi 3).

(b) Megha Sandesha by Kukke Subramaniya Sastry (Kavyalaya, Mysore).

3. *Grammar*—

Portions relating to Grammar in Kannada Kaipidi (Mysore University Publication).

Paper II.

1. Drama: Shakuntala by Basappa Shastry.

2. Old Prose: Ramaswamedha (Muddana)—Chapters 13, 14, 15 and 16.

3. Modern Prose—

(a) Sanskrit by D. V. Gundappa.

(b) Prachina Sahitya by T. S. Venkannaya.

4. History of Literature: An account of the life and works of the following authors together with those of the prescribed works:—

(i) Nagachandra.

(ii) Rudra Bhatta.

(iii) Akka Maha Devi.

(iv) Harihara.

(v) Chatu Vithalanatha.

(vi) Ratnakara Varni.

PART II (*b*)—KANNADA—1961.

Paper III.

1. Avyakta Manana by K. S. Haridass Bhat (M.G.M. College, Udipi).

2. Odahutti davaru by K. S. Karantha (Puttur).

PART III—BRANCH XII—KANNADA.

(*Papers I and II*—1960.)

Paper I.

History of Literature—

Kannada Sahitya Charitra by Dr. R. S. Mugali (For consultation: Kavi Charite, Volumes 1 and 2 by Narasimhachar).

Paper II.

History of Karnataka and Culture—

1. Kannada Nadina Charitre, Parts 1 to 3 (Kannada Sahitya Parishat, Bangalore).

2. Popular Culture of Karnataka by Masti Venkatesiengar.

For Consultation—

1. Heritage of Karnataka by R. S. Mugali.

2. Karnataka Darshana (Commemoration Volume in honour of R. R. Diwakar.)

(*Papers III to VI*—1961.)]

Paper III.

Prescribed Text-books I—

1. Adipurana (Pampa)—14th Aswasa (149 stanzas).

2. Kabbigara Kava (Andayya).

3. Sri Rama Pattabhisheka by Mahalakshmi.

4. Chitrangada by K. V. Puttappa.

Paper IV.

Prescribed Text-books II—

1. Ramaswamedha, Chapters 1 to 7.
2. Veni Samhara Nataka, Prati Krti.
3. Bhasa Bharata Chakra by L. Gundappa.
4. Jeevana Soundarya mattu Sahitya by D. V. Gundappa.
5. Rayachur Vijaya by Krishnappa (Vasantha Malike Publication, Mangalore-3).

Paper V.

Grammar, Prosody and Poetics—

1. Sabdasmriti by Naga Varma.
2. Portions relating to Prosody and Poetics from Kannada Kaipidi (Mysore University Publications).

Paper VI.

History of Language and Elements of the Dravidian Comparative Grammar—

1. History of Kannada Language by Narasimhachar.
2. Kannada Bhasha Shastra by R. Y. Dharwadkar.
3. Kannada Varnagalu by Sediyapu Krishnan Bhat (Kannada Research Institute, Dharwar).

B.A. and B.Sc.

PART II (*a*)—MALAYALAM—1960.

Paper I.

(1) and (2) Selections from Niranam Works and Cherusseri. Published by the University.

(3) Unnayi Variar ..	Nalacharitam Onnam Divasam. Pub.: Mathrubhumi Publications, Kozhikode.
(4) Kaladi Raman Nambiar.	Keli Sakuntalam, Pub.: Kaladi Bros.. Melur, Chalakkudi.

(5) Kumaran Asan .. Chintavishtayya Seetha. Pub.: Sarada Book Depot, Alwaye.

(6) P. Kunhiraman Nayar. Kaliyachan. Pub.: Sri Guruvayurappan Book Depot, Guruvayur.

(7) N. V. Krishna Variar. Kalotsavam. Pub.: Kerala Book Depot, Kozhikode.

(8) M. P. Paul .. Sahityavicharam. Pub.: National Book Stall, Kottayam.

Paper II.

(1) Kappama Krishna Menon. Cheraman Perumal Pub.: Mathrubhumi Publications, Kozhikode.

(2) P. K. Parameswaran Nayar. Mahatma Gandhi. Pub.: National Book Stall, Kottayam.

PART II (*b*)—1961.

Paper III.

An outline of the History of Malayalam Literature.

No text-books prescribed.

Consultation by Teachers—

1. Pradakshinam .. By Dr. C. A. Menon.
2. Adhunika Malayala Sahityam. By P. K. Parameswaran Nayar.

PART III—BRANCH XII—MALAYALAM—1961.

(*Papers I and II*)

Paper I.

History of Literature—

(A study of only the outline of the History of Malayalam Literature is expected.)

The following books are prescribed—

1. Dr. C. A. Menon .. Pradakshinam, Published by The Lokavani Publication—Tambaram.

2. P. K. Parameswaran Nayar. Adhunika Malayala Sahityam—Published by Sri Rama Vilasam Press, Trivandrum.

Books recommended for consultation—

1. Ullur S. Parameswara Iyer. Kerala Sahitya Charitram.—(A) parts) Published by the University of Travancore.

2. T. M. Chummar .. Bhasha Gadya Sahitya Charitram. Published by National Book Stall, Kottayam.

Paper II.

History of Kerala and Culture—

No Text-books prescribed.

Books recommended for consultation—

1. The Chera Kings of the Sangam age by K. G. Sesha Iyer.

2. Chronology of the Early Tamils by K. N. Sivaraja Pillai.

3. Kerala Charitrathile Iruladainja Edukal by Elankulam Kunjan Pillai.

4. Chila Kerala Charitra Prasnangal by Elankulam Kunjan Pillai. (All parts).

5. History of Cochin, Volumes I and II by K. P. Padmanabha Menon.

6. Travancore State Manual, Volume II by T. K. Velu Pillai.

7. Malabar Manual by Logan.

8. Malabar and the Portuguese by K. M. Panikkar.

9. Malabar and the Dutch by K. M. Panikkar.

10. The Portuguese Pirates by O. K. Nambiyar.

11. Koothum Kudiyattamum by Ammaman Thampuran.

12. Kudiyattam by Sri Narayana Pisharoti.

13. Keralathile Nadodi Natakangal, University Publication.

14. Land of Perumals by Francis Day.

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(Papers III to VI—1961.)

Paper III.

Prescribed text-books I. (Upto and including Ezhuthachan)—

1. Ramacharitam: First 10 Patalams.	Edited by P. V. Krishnan Nayar.
2. Kannassa Ramayanam Balakandam: First 100 Verses.	Any Press.
3. Kuchela Gathi ..	By Cherusseri 400 Lines.
4. Mahabharatam — Santhi Parvam.	By Thunchathu Ezhuthachan.
5. Unnuneeli Sandesham— Poorva Bhagam.	Any Edition.
6. Pracheena Malayala Gadya Matrukakal.	Edition by Dr. P. K. N. Pillai.
7. Uttara Ramayana Gadyam, Part I.	By Cochin Bhasha Parishkarana Committee.

Paper IV.

Prescribed text-books II (Post-Ezhuthachan Period)—

1. Malayalam Kollam: First two Sargas.	By Kochunni Thampuran.
2. Kirmeera Vadham ..	By Kottayathu Thampuran.
3. Uttara Rama Charitam.	By Chathukutti Mannadiar.
4. Karnabhooshanam ..	By Ullur S. Parameswara Iyer, Ullur Publication, Jagati, Trivandrum.
5. Nirmala	By Venni Vasu Pillai, National Books Stall, Kottayam.
6. Sahitya Vicharam ..	By M. P. Paul, National Book Stall, Kottayam.
7. Kalaiyum Kalavum ..	By Dr. Bhaskaran Nayar.

Paper V.

Grammar, Prosody and Poetics—

1. Grammar .. .. Kerala Paniniyam.

Omitting Peetika and the detailed discussion of the various grammatical theories. Only the study of the principles to be emphasised.

2. Prosody—Vritha Manjari.

3. Poetics—Bhasha Bhooshanam.

Paper VI.

History of Language and Elements of the Dravidian Comparative Grammar.

Prescribed—

1. Kerala Bhashayute By Elankulam Kunjan Pillai. Vikasa-Parinamangal.

2. Evolution of Malayalam by Dr. A. C. Sekhar.

For consultation—

Comparative Grammar of Dravidian Languages by Dr. Caldwell.

Text-Books for Parts I, II and III of the Three-year Degree Examination, 1961-62

B.A./B.Sc.

PART I (a)—ENGLISH—1961.
(First three papers to be taken in 1961.)

Shakespeare—

1. Much Ado about Nothing.
2. Macbeth.

Poetry:

Paradise Lost—Book II (After dissolution of the Stygian Council 550—II. (506-1055).

and

The following from 'An Anthology of Longer Poems' (Moles and Moon)—Longmans:—

1. Goldsmith: The Deserted Village (from line 251 to 430).
2. Coleridge: Christable—Part I.
3. Keats: The Eve of St. Agnes.
4. Browning: Abt Vogler.
5. Thompson: The Hound of Heaven.
6. Flecker: Gates of Damascus.
7. Wilfred Bigson: The Lodestar

Prose:

1. English Essays of today—O.U.P. (The following essays in the book are (OMITTED)—

Beerbohm ..	The Golden Drugget.
Blunden ..	The Somme Still Flows.
Walter De La Marea ..	The Vats.
Frazer ..	A Dream of Cambridge.
Gould ..	Refuge from Nightmare.
Graham ..	Snow in Monteith.
Hadow ..	The Meaning of Music.
Scott ..	Joys of Criticism.
The Times	The Street.
Tomlinson ..	Beauty and the Beast.
Waddell ..	The Hyacinth Fields.

Woolf	..	Lord Chesterfield's Letters to his son.
Yeats	..	Emotion of Multitude.)

2. The Art of English Prose—K. P. K. Menon—Longmans.

PART I (b)—ENGLISH—1960.

(Fourth paper to be taken in 1962)

Non-Detailed Reading:

1. The Trumpet Major (Hardy)—Macmillan.
2. The Roll Call of Honour (Quiller-Couch), Thomas Nelson.

B.A.

PART III—BRANCH XII—ENGLISH.

Group A—Main.

1962.

(*a*) *Shakespeare—*

Richard III. The Tempest. (A general knowledge of the other plays of Shakespeare will be required.)

(*b*) *Drama—*

For Detailed Study—

Dr. Faustus (Marlowe).

St. Joan (Bernard Shaw).

For Non-detailed Reading—

Goldsmith: She stoops to Conquer.

Galsworthy. The First and the Last.

J. M. Bassie: The Admirable Crichton (Longmans).

(*c*) *Prose—*

For Detailed Study—

Essays of Elia (First series).

Essays by Modern Writers: Japson (Longmans).

For Non-detailed Reading—

Evan Harrington: Meredith.

Barchester Towers: Trollope.

(*d*) *Poetry*—

Wordsworth's 'Prelude'—Book I.

and

The following selections from Standard English Poems (Ed. Young and K. R. Srinivasa Iyengar) (O.U.P.)

Milton: L'Allegro and IL Penserose.

Pope: Epistle to Arbuthnot.

Collins: Ode to Evening.

Browning: Child Roland to the Dark Tower came.
The Last Ride Together.

Arnold: Dover Beach.

Yeats: The Tower.

Brooke: Menelaus and Helen; Peace: Safety: The Dead; The Soldier.

Hodgson: The Song of Honour.

Lawrence: Snake.

NOTE.—A general knowledge of the other poems of Wordsworth will be required.

N.B.—In all the four papers, credit will be given for a good general knowledge of English Literature.

Group B—Ancillary.

1961.

1. *History of English Literature*—

Books recommended—

(1) Legouis—A Short History of English Literature.

(2) Compton—Rickett—A Short History of English Literature.

(3) Sampson, G.—A Concise History of English Literature.

(4) Hudson—An Introduction to the Study of Literature.

(5) Hudson—Outline History of English Literature.

2. *Social History of England*—

Book recommended:

Trevelyan—English Social History.

B.A. and B.Sc.

PART II (a)—SANSKRIT—1961.

1. Kalidasa's Sakuntala.
2. Kalidasa's Meghadhuta (Whole).
3. Bharavi's Kiratarjuniya—Canto I only.
4. Dandin's Dasakumara charita—Purvapithika only.

The allocation of text-books for the three papers shall be as follows:—

Paper I—

Sakuntala, Meghadhuta and Kiratarjuniya.

Paper II.

Dasakumara charita and Translation from Sanskrit into English and English into Sanskrit.

40 marks to be allotted for prose-text and 60 marks for transs lation.

PART II (b)—SANSKRIT—1962.

Paper III.

Dandin's Kavyadarsa, Chapters I and II, Verses 1-96, ending with the figure Rupaba.

History of Sanskrit literature:

Text-books—

Macdonell; History of Sanskrit Literature, Chapters X to XIV.

Keith: Classical Sanskrit Literature—Heritage of India Series.

B.A.

PART III—BRANCH XII—SANSKRIT—SECTION A.
(*Examination for Papers I and II to be held in* 1961.)

Paper I.

Books of the later period I—

1. Bhavabhuti's Uttararama charita.
2. Bhoja's Campuramayana—Ayodhya Kanda only.
3. Harsha Charita—Ucchvasa 3.

Paper II

Ancient Indian History and Culture upto 1000 *A.D.*

Books recommended for study—

1. K. A. Neelakanta Sastri: History of India, Volume I.
2. Basham: The wonder that was India.

   Copies can be had of Orient Longmans & Co., Madras-2.

Books recommended for consultation—

History and Culture of the Indian People, Bharathiya Vidhya Bhavan, Bombay. (Volumes 1 to 6.)

(*Examination for Papers III to VI to be held in* 1962.)

Paper III.

Books of the Early Period—

1. Macdonell: Vedic Reader: The following selections:—

   Agni I. 1.

   Savitr I. 35.

   Maruts I. 85.

   Visnu I. 153.

   Funeral Hymn X. 14.

   Pitaras X. 15.

   Gambler X. 34.

   Yama X. 135.
2. Aitareya-brahmana VII—3 and 4.
3. Kathopanishad—First Adhyaya—Text only.
4. Gautama Dharma Sutra—Text only—Chapters 1 to 9.

   Government Press, Mysore or Anandasrama Press, Poona.

Paper IV.

Books of the Later Period II—

1. Mahabharata—Viduraniti—Prajagaraparva in Udyogaparva—Chapters 33 to 40.
2. Patanjali's Mahabashya I-I-I.
3. Bhagavadgita—Chapters 1 to 6.

Paper V.

Comparative Philology with special reference to Sanskrit, according to the existing syllabus for Grammar (historical) under Part III Sanskrit and History of Sanskrit Literature—Vedic Period only.

Macdonell : History of Sanskrit Literature.

Winternitz: History of Indian Literature (Volume I).

Paper VI.

Elements of Poetics, Grammar and Indian Logic.

1. Dandin's Kavyadarsa—Pariccheda I.

2. Grammar—Varadaraja's Madhya Siddhantakaumudi—the Chapters on Samjna, Pancasandhi and Karaka only (Chowkhamba Book Depot, Benares).

3. Annambhatta's Tarkasangraha with Nyayabodhini.

SECTION B.

(*Papers I and II*—1961.)

1. Prescribed text-books—General—Paper I—

(i) Visvanatha Pancanana—Muktavali with Dinakari of Sabda khanda.

(ii) Gauthama dharma Sutras—First nine Paricchedas.

(iii) Manusmriti—Chapter 9. Text only.

2. Prescribed text-books—General—Paper II—

(i) Siddhanthakaumudi—Purvardha only (omitting Tadhita).

(ii) Rig. Veda. Macdonell's Vedic Reader, I to X hymns (both inclusive)—Text only.

(iii) Kathopanishad—Text only.

(*Papers III to VI*—1962.)

3. Prescribed text-books—General—Paper III—

(i) Jaiminiya Nyayamalavistara from the beginning to the end of Pada 3 in Chapter III.

(ii) Mimamsa Nyayaprakasa of Apodeva.

SPECIAL PART.

1. *Mimamsa*—

Paper I.

Taittiriya Samhita with Sayana's Bhasya, Khanda 1, Prapathaka.

2. Apasthamba Srauta—Sutra with Rudradatta's Vritti—Prasana I to V (both inclusive).

Paper II.

Bhatta Dipika from beginning to end of the third Pada of the third.

Adhyaya (Chapters I to III).

Aitreya Brahmana with Sayana Bhasya, fourth Panchika.

Paper III.

Bhatta Dipika from the fourth Pada of Chapter III.

3. *Nyaya*—

Paper I.

Gauthama's Nyaya sutras with Vatsyayanas Bhasya, Chapters I and II.

Kanada's Vaiseshika sutras, Text only.

Paper II.

Jagadesa's Panchalaksani and Simhavyaghri.

Gadadhara's Cauturdasalakshana.

(*a*) From beginning up to the end of the Dvitiyasvalakshana.

(*b*) Kutaghatitalakshana.

(*c*) Kutaghatitalakshana.

(*d*) Vyadhikarana—Dharmavacchinanabhava—Khandana grantha.

Paper III.

Gadadhara's Paksata: Sarvabhimanta.

Gadadhara's Siddhantalakshana (whole).

4. *Vyakarana*—

Paper I.

Paribhasandusekhara (whole).

Paper II.

Praudamanorama, Text from beginning to end of Avyayibhava: Siddhantakaumudi Krit and Taddhita Sections.

Paper III.

Sabdaratna from beginning to end of Stripraayaya.

5. *Sahitya*—

Paper I.

Bana's Kadambari from Mahasveta Vrittanta to the end of Purvardha.

Sri Harsha's Naishada, cantos 10 and 11.

Kumarasambhava, cantos 1 to 5 (inclusive).

Nilakanthavijaya of Nilakantha Dikshita, Uchvasa III only.

Paper II.

Sakuntala.

Malatimadhava.

Mrichakatika.

Mudrarakshasa.

Paper III

Dandin's Kavyadarsa— Paricheheda I only.

Kuvalayananda (whole).

Siddhanthakaumudi—Taddhitha—Apatyadhikara only.

Dhananjaya—Dasarupaka with Avaloka.

6. *Jyotisha*—

Paper I.

Bhaskara's Rijaganita.

Bhaskaracharya's Lilavati—whole (omitting Prakarmastaka, Kuttaka and Pasa).

Paper II.

Kshetramiti by Durgaprasada, Books III and IV only.

Trikonamiti.

Paper III.

Golaprakasa. Capiyatrikonamiti and Golarekhaganita only.

7. *Ayurveda--*

Papers I.

Astangahrdaya, Sarira, Nidana and Cikitsa sthanas.

Paper II.

Carakasamita, Sutra and Sarira Sthanas.

Pratyaksha Sarira by Mahamahopadhyaya Gananath Sen.

Paper III.

Rasaratnasamuccaya, first eleven chapters.

B.A.

PART III—SANSKRIT.

Branch VIII—Indian Music (Main).

Ancillary Syllabus in Sanskrit—1961.

(i) Kalidasa's Raghuvamsa, Canto XII.

(ii) Vikramarka charita—Stories 1 to 4. Pages from about 25 to 40

(iii) *Prosody*—

Elements of Sanskrit prosody—distinction into Matra, Vritta and Gana Vritta—The characteristics of the Vrittas—Anustubh Upajati-Vamsastha, Vasantatilaka, Malini, Sikharini, Mandakranta, Sardulavikridita, Sraghara, Dandaka, Arya—Examples of the more musical metres: Champakamala, Dodhaka and Totaka, Bhujangaprayata, Mattamayura, Tunaka and Citra, Panca-Camara, Mattakrida, Tanvi, Kraunchapada. Consult: Vrittaratriakara, Sratabodha, Candomanjari.

(iv) 30 Sanskrit Musical Compositions—

I. Jayadeva—

(i) Pralayapayodhi jale—Introductory Dasavatra Ashtapadi.

(ii) Lalitalavanga—First Ashtapadi.

II. Narayanatirtha's Tarangas—

(iii) Govinda Ghatya—Bhairavi.

(iv) Puraya mama kamam—Bhilahari.

III. Sadasiva Brahmendra—

(v) Manasa Sancarare (Sama).

(vi) Bruhin Mukundeti.

(vii) Tunga tarange.

IV. Swati Tirunal—

(viii) Sarasijanabha myrare—Todi.

(ix) Sarasaksha paripalaya—Pantuvarali.

(x) Kripaya palaya Saure—Charukesi.

(xi) Vande Sada Padmanabham—Navarasa Kannada.

V. Syama Sastri—

(xii) Kanaka Saila Viharini—Punnagavarali.

(xiii) Sankari Sam Kuru—Saveri.

VI. Chinnasami Sastri—

(xiv) Sri Lalite—Bhairavi.

VII. Tyagaraja—

(xv) Girirajasutatanaya—Suddhabangala—Ganesa.

(xvi) Varasikhivahana—Supradipa—Subrahmanya.

(xvii) Nadatanumanisam—Chittaranjani—Siva.

(xviii) Samajavaragamana—Hindola—Krishna.

(xix) Sri Narada—Kanada—Narada.

(xx) Janakiramana—Sudhasrimanthini—Rama.

(xxi) Jayamangalam—Ghaula—Mangalam.

VIII. Muttuswami Dikshitar—

(xxii) Siddhivinayakam—Cannara or Shanmukhapriya—Ganesa.

(xxiii) Vinapustakshidharini—Vegavahini—Saraswati.

(xxiv) Mahalakshmi karunarasalahari—Madhava Manohari (raga)—Lakshmi.

(xxv) Sri Subramanya Nyanamaste—Kambhoji—Subrahmanya.

(xxvi) Sri Parvatiparameswaran—Barali—Parvati and Parameswara.

(xxvii) Sri Dakshinamurte—Sankarabharana—Dakshinamurthi.

(xxviii) Kamalamba bhajare—Kalyani—Devi.

(xxix) Suryamurte—Saurashtra—Sun.

(xxx) Mamava Pattabhiram—Maniranga—Rama.

B.A. and B.Sc.

PART II (*a*)—HINDI—1961.

(Papers I and II)

Poetry:

(i) University Poetry Selections.

(ii) Milan—Ram Naresh Tripati.

Prose and Drama:

(1) Hindi Gadya Garimar (excluding lessons 7, 11, 14, 16 and 18)—Edited by Ramdhir Upadhyaya, Macmillan & Co., Ltd.

(2) Kirti Stammbha—Hari Krishna 'Premi'.

(3) Chaya (One-Act plays)—D. B. Hindi Prachar Sabha, Madras.

PART II (*b*)—HINDI—1962.

Paper III.

Non-detailed texts—

1. Nirmala—Prem Chand.
2. Katha Kaumudi—D.B.H.P. Sabha, Madras.

B.A.

PART III—BRANCH XII—HINDI.

(Examination for Papers I and II to be held in 1961.)

Paper I.

History of Hindi Literature—

1. Hindi Sahitya Ka Itikas—by Dr. Ram Kumar Verma (R. N. Lal).

2. Hindi Kavya Vimarsh—Sri Gulab Rai.
3. Hindi Bhasha aur Sahitya—Shyam Sundar Das.
4. Hindi Sahitya Ka Itihas—Pt. Ram Chandra Shukla.
5. Kavya Charcha—Prof. Lalita Prasad Sukal.

Paper II.

Indian History and Culture—

1. Itihas Pravesh—Jaichandra Vidyalankar.
2. Bharateeya Sanskriti—Dr. Baldev Prasad Mishre.

For reference only—

1. History of India—K. A. Nilakanta Shastri.
2. The Legacy of India—Edited by Garret.
3. Bharateeya Sanskrit—Sri Ram Dhari Singh "Dinkar".
4. Bharatvarsh Ka Sankshipta Itihas—University of Madras.

(*Examination for Papers III to VI to be held on* 1962.)

Paper III.

Prescribed Text-books—I (Poetry)—

1. Kavya Kalanidhi—Baugeeya Hindi Parishad, Calcutta.
2. Kavitavali (Omitting Uttar Kanda)—Tulasidas.
3. Gunjan—Sumitra Nandan. Pant.

Paper IV.

Prescribed Text-books—II (Prose and Drama)—

1. Gadya Kusum Mala—Ram Narayan Lal & Co., Allahabad.
2. Ajatshatru—Jai Shankar Prasad.
3. Gaban—Premchand.
4. Hindi Ki Amar Kahaniyan—Edited by Jagannath Prasad Sharma.
5. Reshmi Tie—Ram Kumar Verma.

Paper V.

Prosody and Poetics—

1. Kavya Pradeep—Ram Bihari Sukla.

2. Alankar Manjoosha—Lala Bhagwan Deen.

3. Kavya Parichaya—Chandra Shekar Shastri and Ram Chandra Sukla "Saras".

Paper VI

History of Language and Grammar—

1. Hindi Bhasha Aur Sahitya—Shyam Sundar Das.

2. Vyakaran Pradeep—Ram Deo (Hindi Bhavan, Allahabad)

3. Sankshipta Hindi Vyakaran—Kamta Prasad Guru.

(*Note.*—All the papers shall be set and answered in Hindi.)

B.A. and B.Sc.

PART II (*a*)—MARATHI—1961.

(*Papers I and II.*)

Paper I.

(Poetry, History of Literature, Prosody and Poetics).
For Detailed Study.

Poetry—

1. Moropant—Virat parva.

2. Pacha Kavi—Edited by Rajadhyaksha.

History of Marathi Literature—Books recommended—

1. Maharashtra Saraswat (Chapters on Dyaneshwar, Waman by Bhava Pandit, Tukaram and Moropant).

2. Marathi Sahityachi Ruparesha by Dr. U. P. Dandekar.

Prosody and Poetics—Books recommended—

1. Alankara Chandrika by Gore, G. U.

2. Vrittadarpan by P. B. Gadbole.

Paper II.

(Prose. Drama and Grammar).

For Detailed Study.

Prose—

Marathi Nibandha by R. S. Walimba.

Drama—

Punya Prabhava by Gadkari.

Grammar—

Books recommended—Praudhabodha Vyakaran by R. B. Joshi.

PART II (*b*)—MARATHI—1962.

Paper III.

Paper III—(Non-detailed text, passage or passages in English for translation into Marathi, General Composition having reference to modern thought)—

Non-Detailed Text.

1. Daulat by N. S. Phadake.
2. Parijat—Edited by V. S. Khandekar.

B.A.

PART III—BRANCH XII—MARATHI.

(*Examination for Papers I and II to be held in* 1961.)

Paper I.

History of Marathi Literature—Books recommended—

1. Maharashtra Saraswat by Bhava.
2. Pradakshina—Edited by A. A. Kulkarni.
3. Arvachina Marathi Sahitya—Nene.
4. Marathi Sahityachi Ruparesha by Dr. U. P. Dandekar.

Paper II.

History and Culture of Maharashtra—Books recommended—

1. Maharashtracha Samskritic Itihasa by Dr. S. D. Pendre.

2. Marathi Riyasat by Sardesai.

3. Tirtharupa Maharashtra, Parts I and II by Ma hadeshartri Joshi.

(Examination for Papers III to VI to be held in 1962.)

Paper III.

Poetry (ancient and modern)—Prescribed Text-books I—

1. Dyaneshwari 12th Adhyaya.
2. Mukteshwar—Sabha parva.
3. Keshavasuta—Keshana Sutanchi Kavita.
4. Tilak—Tilaknachi Kavita.
5. Bee—Phulanchi Orjala.

Paper IV.

Prose and Drama—Prescribed Texts II—

1. Adnyapatra by Ramachandra Pant Amatya.
2. Amachya Deshachi Sthiti by Chipplonkar.
3. Nibandha Sangraha Part I by Agarkar.
4. Vidyaharam by Uhadilkar.
5. Ekach Pyala—Gadkari.

Paper V.

Prosody and Poetics—Books recommended-

1. Chandraihana by Patvardhan.
2. Abhinana Kavyaprahash by Jog.
3. Kavyalochana by Kelkar.

Paper VI.

History of Language and Grammar—Books Recommended—

1. Marathi Bhasha—Udgama Ani Vikasa by Kulkarni. K.P.
2. Sabnis—Adhunik Marathiche Ucchatar Vyakaran.

B.A. and B.Sc.

French.

Part II—French, 1961.

Tales of Adventure from Modern Authors by F. Roe Longmans Le Petti Choe Part I. By Dandet. Harap. Oxford Book of French Verse. 13th to the 20th Century. Racine Esther; Numbers 146 to 202. Le Colonel Chabert Gobsecb. By Balzac. Harap (to be taken in 1962).

B.A.

Part III—1962.

Drama:

L'Avare by Moliere.

Athalie by Racine.

Hernani by Victor Hugo.

Poetry:

Oxford Book of French Verse, 13th to the 20th Century. Numbers 198 to 231.

Prose:

Colonel Chabert Gobsecb. By Balzac. Harap Le Barrage. By Bordeaux.

Ce Que dilscentes livres. By F. Faguet. O.U.P.

Author's Life and Work to be studied: Victor Hugo.

History of French Literature from the Renaissance to Modern Times.

(Recommended for Reference: Cazanian's History of French Literature Saintsbury's History of French Literature, Historie de la language Francies. By Ch. das Granges).

B.A. and B.Sc.

Latin.

Part II-- 1961.

Cicero: Pro Archia Poeta.

Vergil: Aeneid Book I.

Horace: Odes Book IV (to be taken in 1962).

Part III--1961, 1962.

Drama:

Either Miles. Gloriosus of Glaurus, or Adelphi of Terence.

Prose:

Cicero: Pro Lege Manilia Tacitus Annalas Book I.

Poetry:

Vergil: Aeneid Book VIII.

Horace: Odes Book III.

Juvenal: Satire X.

Study of author's life and work: Cicero.

History of Latin Literature.

B.A. and B.Sc.

PART II (*a*)—GERMAN—1961.

(*Papers I and II.*)

1. Grammar—Wrenn—Krips. (Harrap). An Intermediate German course (40 poems).

2. Modern German Short Stories, Second Series by H. F. Eggling (O.U.P.).

3. Wilhelm Tell by Schiller.

PART II (*b*)—1962.

(*Paper III*)

Egmont by Geethe.

B.A. and B.Sc.

PART II (*a*)—TAMIL—1961.

Paper I.

Poetry and Grammar:

1. Pattinappalai.

2. Purananuru: 200 lines from Auvvaiyar's Verses.

3. Kurunthokai: 50 lines other than those selected in 1960.

4. Tirukkural: 100 lines (Five Chapters beginning with Iraimatchi).

5. Silappadhikaram—Vanchikkandam—Katchikkathai.

6. Chintamani: 312 lines (Pathumaiyar Ilambakam).

7. Periyapuranam: 42 stanzas (Anaya Nayanar Puranam).

8. Kambaramayanam: 400 lines (Kaikesi Suzhvinaippatalam)

9. Bharathiyar Kuyil Pattu: 160 lines.

10. Tanippadalkal: 80 lines.

NOTE.—In Grammar the syllabus has to be followed. The 100 marks allotted for this Paper I shall be distributed between Poetry and Grammar in the proportion of 80: 20. The questions on Grammar shall be based on the syllabus correlated with the Poetical Selections prescribed.

Paper II.

Drama and Prose:—

Prose:

1. Ilakkiyak katturaigal by Dr. M. A. Dorai Rangasamy (Navaneetham Ammaiyar, c/o Star Prasuram, Triplicane, Madras).

2. Mannavar Nithiyum Mangaiyar Mannbum by K. Balasundaram Mudaliar, S. Vasan & Co., Mylapore, Madras-4.

Drama:

Manonmaniyam.

PART II (*b*)—TAMIL—1962.

Paper III.

Translation, Composition and A General History of Tamil Literature.

Books recommended for—A General History of Tamil Literature:

1. Tharkalap-pirkalat Tamil Pulavar by Maraimalai Adigal (S.S.W.P. House, Madras).

2. Sangakalat Tamizhum Pirkalat Tamizhum by Dr. Swaminatha Ayyar.

3. Ilakkiya Varalaru by K. Subramanya Pillai (S.S.W.P. House, Madras).

NOTE.—Questions should not be based on these texts but should be of general nature on the History of Tamil Literature. Questions should not be asked to fix the dates of Poets, etc.

B.A.

PART III—BRANCH XII—TAMIL.

(*Papers I and II*—1961.)

Paper I.

History of Tamil Literature—History and Developments of various trends and their changes in the subject-matter, idiom, rhythm and verification and other modes of expression generally all through the ages and in particular from age to age or century to century :—

1. The condition of literature as may be gleaned from Tolkappiyam.

2. Sangam period: Characteristics of Sangam Literature—the conception of Tokai and the absence of Epic before Silappadhikaram.

3. The eighteen ethical works—their general trends and characteristic features—inter relations—influence of Kural and its place in Tamil Literature—The relationship between Kilkkanakku and Melkanakku—the later Ethical Literature and their relationship with Kilkanakku.

4. Growth of Epics—Silappadhikaram—its relationship with Sangam Age—its influence on later day literature—its relationship with Manimegalai.

5. The so-called major and minor five epics—a criticism of this conception from the historical and literary point of view.

6. Kamba Ramayanam—its age—characteristic festures—importance and influence.

7. Periyapuranam—its age—characteristic features—importance and influence.

8. The later Sthalapuranas.

9. The various kinds of prabandhams—their rise and development in general with an explanation of the influence shaping them.

10. The folk song influencing literature from time to time.

11. The history of drama—Kuravanchi, Pallu, Nondi Natakam, Kirthanai natakam—Foreign dramas and their influence—Modern Dramas and Radio Dramas and Cinemas.

12. Prose—Development from the earliest Age to the modern times.

13. Modern trends and modern kinds of literature.

14. Religion and Philosophy in Tamil literature—their development and varieties.

15. The general trends of the Sangam age, of the Pallava age, of the later Cholas, of the later Pandyas, of the Vijayanagar period and of the period of the Western influence.

16. The contributions of the various religions and their institutions (Mutts), etc., to Tamil literature.

Books recommended—

1. K. S. Srinivasa Pillai—Tamil Varalaru, Parts I and II.

2. K. Subramania Pillai—Ilakkiya Varalaru.

3. Somasundara Desikar—16th Century Tamil Poets; 17th Century Tamil poets.

4. Pandai Tamil Ilakkiya Varalaru by Sadasiva Pandarattar (*a*) 300-600 A.D.; (*b*) 13th, 14th and 15th Centuries.

Paper II.

History of Tamil Nad and Culture—

I. History—

1. Sources of our study.

2. Influence of geography on history—Historical divisions of the country in the various periods.

3. The culture of the earliest inhabitants—Old Stone Age—New Stone Age—Race types—Linguistic and Cultural affinities—Megalithic monuments—Rock paintings—Painted pottery, etc.

4. Pre-Sangam History and Culture—Sangam Age—Foreign contacts.

5. Post-Sangam period—Kalabhras—Foreign influence—Pallavas conflict with the North and the South—the Pandyas, Mutharaiyas, Irikkuvel; the Religious condition—Village community and Local Self-Government Polity.

6. The Later Cholas—their growth—Conflict with other powers—their influence in and outside India—The Rise of the Later Pandya Power—the conflict of the Cholas, Pandyas, Hoysalas and Yadhavas.

7. The fall of the Tamil Political Power—influence of Vijayanagar Rulers, Nayaks, Marattas—the development of Western and Muslim influence—the Palayakars.

8. The struggle for Freedom—Gandhian Era.

II. Culture—

The Social and Economic conditions—Literature—Religion and Philosophy—Painting—Sculpture—Iconography—Architecture—Music and other Fine Arts—Handicrafts—Polity, Custom and Law, all forming a distinctive Culture, developing from Age to Age influenced by and influencing others.

Books recommended—

1. Ten Indiyac-chirppangal by Kanakarathnam.
2. Alagu Kalaigal by Seeni Venkataswamy.
3. South Indian History by K. Nilakanta Sastry.
4. Tamils 1,800 years ago by Kanakasabai Pillai.
5. Contributions of South India to Indian Culture by S. K. Aiyangar.

NOTE.—The Questions on Political History shall bear 40 marks and the questions on Culture shall bear 60 marks.

(*Papers III to VI*—1962).

Paper III.

Prescribed Texts I—

1. **Perumbanarruppadai—248 lines.**
2. **Tirukkural-Araciyal—500 lines.**
3. **Purananuru, Vol. 51-100—635 lines.**
4. **Silappadhikaram—(*a*) Urkann Kathai, (*b*) Adaikkalak kathai and (*c*) Kolaikkalak kathai—658 lines.**

Paper IV.

Prescribed Texts II—

1. Kambaramayanam—Kaatchi. Ninthai and Urukkattup-patalams—1,104 lines.

2. Villiputturar Baratham—Kandavadhahanaccharukkam — 304 lines.

3. Tiruvilaiyadalpuranam—Paranjothiyar—Viraguvirra patalam —total 280 lines.

4. Tiruvembavai and Tiruppavai—200 lines.

5. Sekkizhar Pillaittamizh—1st five in each of the 10 parvams —200 lines.

Paper V

Grammar, Prosody and Poetics—

1. Nannul Kandigai urai—Arumuga Navalar.

2. Yapparungalakkarigai—Old Commentary.

3. Dandiyalankaram—Porulani Iyal—General study without details of classifications.

NOTE.—The questions on Grammar shall bear 40 marks: Questions on Prosody 30 marks and Questions on Poetics 30 marks.

Paper VI.

History of the Tamil Language and Elements of the Dravidian Comparative Grammar—

1. *Syllabus for the History of the Tamil Language—*

General—The place of Tamil in the Dravidian family of Languages—Its high antiquity—Its geographical area in ancient times —the Sentamizh and Koduntamizh Counties—Very early cultivation of Tamil—The three Sangams.

The Periods of Tamil Language—The Old or Sangam Tamil—The Mediaeval Tamil and the Modern Tamil—Illustrative Literature of each Period—Grammars of the different Periods—The extent of Foreign influence on Tamil Grammars.

Phonology.—Vowels—Their relationship to the primitive Dravidian. Vowel system—History of Vowels—Accent and Emphasis —Rising, Falling and Vanishing Accents—Influence of accent on Word change and in Prosody Alapedai—Mutation of Vowels—Vowel Harmony—Vowel Sandhi—Clides.

Consonants—Their relation to the Primitive Consonants—History of Consonants—Mutations of Consonants, Palatalization, Dentalization, Voicing, Unvoicing, Consonant length, Assimilation, Alapedai—Consonantal Sandhi.

Laws of Tamil Syllabation—Difference between Tolkappiam and Nannul—Light on the Nature of Loan words.

Morphology—Historical treatment in the Old and Modern Tamil of the following:—Nouns—Pronouns—Case, the Verbs, The Passive Voice, The Moods—Imperative, Infinitive, Subjunctive. The Tenses—The tense-formation—The principles of their use—Negative particle. The Relative and Verbal Participles.

Word Building—By Composition—Compound words (Tokai, Ummai, Uvamai, etc.)—By Derivation—By Root creation—Back formation—Double bases, etc.

Vocabulary—The general character of Tamil Vocabulary at different Periods—Borrowings—Their causes—Doublets—Telugu and Kannada Elements in Tamil—Loss of Old words—Nature and extent—Sanskrit words—Tatsamas—Tadbhavas (Rules regarding these)—Prakrit borrowings—Manipravala style—Other borrowings (Hindi, Portuguese, English, etc.)—Hybrids—Tests for distinguishing Loan words.

Semantics—Changes in the meaning of words—Elevation, Degradation, Specialization and Generalization from age to age.

Syntax—Historical. Study of the order of words in a Sentence—Deviation from the Normal—Causes—Difference between the Syntax of Poetry and Prose—Foreign influence in Tamil Syntax

2. *Syllabus for the Elements of the Dravidian Comparative Grammar*: *Dravidian Languages*—The Dravidian Group of Languages and their chief characteristics—Enumeration of the Dravidian Languages.

Dravidian Phonology—The Primitive Dravidian Parent Language—Vowel System—Changes—Accent—Harmonic sequence of Vowels—System of Consonants—Origin of Cerebrals (Retroflex)—Dialectic interchange of Consonants—Euphonic permutation of Consonants—Sandhi—Nasalization Prevention of Hiatus—Dravidian Syllabation.

Dialect—Sentamizh and Koduntamizh.

Morpphology—The Noun.

Gender—Dravidian Nouns divided into two Classes denoting Rationals and Irrationals.

Number—Singular and plural—No Dual—Singular—Masculine, Feminine and Neuter—Plural—Principles of pluralization.

Case—Principles of Case-formation—Dravidian Cases—Comparison with Sanskrit Cases.

The Pronoun—Pronouns of the First and Second Person—Comparison of Dialects—The Reflexive Pronoun—Pluralization of the Personal and Reflexive Pronouns—Demonstrative and Interrogative Pronouns—Their bases—Demonstrative and Interrogative Adjectives and Adverbs—Honorific Demonstrative Pronouns.

The Verbs—Structure of the Dravidian Verbs—Roots used either as Verbs or Nouns—Formative Particles often added to Roots—Classification of Verbs.

Casual Verb—their formation.

Frequentative Verbs.

Conjugational System—Formation of the Tenses—Their significance and force—The Present Tense—The Preterite Tense—The Future Tense—The Verbal and Relative Participles.

Formation of Moods—Methods of forming the Conditional, the Imperative and the Infinitive.

The Voice—Active and Passive—The Negative Voice—Combination of Negative Particles with Verbal themes—The Dravidian Negative Particles.

Formation of Verbal Nouns, Derivative Nouns and Abstract Nouns.

Comparative Syntax—The Syntax of the several Languages compared—The extent of Foreign influence over the Syntax of the several Languages.

NOTE.—The Questions on the History of the Tamil Language shall carry 50 marks and the Questions on the Elements of the Dravidian Comparative Grammar shall carry 50 marks.

B.A. & B.Sc.

PART II (a)—TELUGU—1961.

Papers I and III.

A. Old Poetry:

1. Krishnarayabaramu—Cantos 3 and 4 from Udhyoga Parvamu by Tikkana.

2. Chiruthondanambi katha—Canto 2 from Haravilasamu by Srinatha.

3. Natkiruni katha—Canto 3 from Srikalahasti mahatmiyamu by Dhurjati.

(Selections Nos. 3, 5 and 6 published by the University of Madras.)

B. Modern Poetry :

Panchamrutamu by Srimathi M. Audilakshmi, M.A., M.LITT. Copies available from: N. Sarveswara Rao, 15, Muzaffarjang Bahadur Street, Triplicane, Madras-5.

C. Drama :

1. Malavikagnimitramu by Sri M. Sarabheswara Sarma, Pandit, Government Oriental Manuscript Library, Madras.

2. Dhruvavijayamu by Sri Vangipuram Krishnamacharya, Assistant Professor, Pachaiyappa's College, Madras.

D. Prose:

Vyasamala—Edited by Sri P. V. Somayajulu, M.A. Copies available at M. S. R. Murty & Co., Book-Sellers and Publishers, Main Road, Visakhapatnam.

PART II (b)—TELUGU—1962.

(*Paper III*).

E. Non-detailed Prose:

Kokoro—By Sosaki Natsume (Japanese Fiction) Translated into Telugu by Srinivasa Chakravarthi Adarsagrandha Mandali, Vijayawada.

B.A.

PART III—BRANCH XII—TELUGU—1961.

Papers I and II

No books are prescribed; syllabus to be followed.

Papers III to VI—1961.

Text-Books I:

1. *Old Poetry*:

1. Parvathi parinayam—Cantos 7 and 8 from Kumarasambhavamu of Nannichoda.

2. Surasanamma katha from Dvipada Panditaradhyacharitra by Palkuriki Somanatha Kalabhashi.

3. Kalapurnodayamu—Cantos 1 and 2 (without the avatarika or introductory verses) by Pingali Suranna.

4. Sitavanavasa Gamanamu—From Uttara Ramayanamu by Kaukanti Paparaju Sastry.

B.A. Selections Nos 1, 2, 8 and 9—published by the University of Madras.

2. *Modern Poetry*:

1. Dikshita Duhita by T. Sivasankara (Saraswati Niketanamu, Vetapalem, Guntur district).

2. Viramanedu by Mudivarti Kondamacharyulu, Published by M/s. Vadlamudi Ramayya, Nellore.

Text-Books II:

Drama:

1. Veni Samharamu by Subbarayudu, V. (Publishers: V. Eswaravaraprasada Rao, near Training College, Rajahmundry, East Godavari district.)

2. Gatopakhyanamu by Chilakamarti Lakshmi Narasimham (Publisher: Kondapalli Veeravenkaiah, Rajahmundry, East Godavari district).

Prose:

Meegada Tarakalu by Veturi Prabhakara Sastry (Veturi Sankara Sastry, Arsha Rasayana Sala, Muktyala, Krishna district).

Grammar, Prosody and Poetics:

1. Balavyakaranamu—Tatsama, Acchika Kriya Parichchedamulu.

2. Boudhavyakaranamu—Sandhi Sabda Karaka, Kriya Parichchedamulu.

3. Narasabhupaliyamu—Cantos 3 and 5.

4. Appa Kaviyamu—Canto 3.

5. Dasarupakamu—K. Ananta Charyulu. (All books available from Vavilla Ramaswamy Sastrulu & Sons, Esplanade, Madras).

B.A.

PART III—BRANCH VIII.

Group B—Telugu—1961.

1. Pallakisevaprabandhamu—Edited by Sri P. Sambamurti, Music Department, University of Madras, Madras.

2. Kshetrayapadamulu—Introductions to the Editions published by—

(1) Sri V. Appa Rao, M.A., L.T., Pattabhipuram, Guntur.

(2) Dr. G. V. Sitapati, B.A., L.T.

B.A. & B.Sc.

PART II (a)—KANNADA—1961.

(*Papers I and II.*)

Paper I.

(1) *Old Poetry*:

(*a*) Pampa Bharata—12th Aswasa (221 stanzas).

(*b*) Gada Yuddha by Ranna: 7th and 8th Aswasas (68 + 67 = 135 stanzas).

(2) *Mediaeval Poetry*:

(*a*) Jaimini Bharata: Sandhis 1, 2 and 3 (omitting stanzas 7, 9, 10 and 29 in Sandhi 3).

(*b*) Megha Sandesha by Kukke Subramanya Sastry (Kavyalaya, Mysore).

(3) *Grammar*:

Portions relating to Grammar in Kannada Kaippidi (Mysore University Publication).

Paper II.

1. *Drama*: Shakuntala by Basappa Chowdhury.

2. *Old Prose*: Ramaswamedha (Muddana)—Chapters 1 to 6.

3. *Modern Prose*:

(*a*) Samskriti by D. V. Gundappa.

(*b*) Prachina Sahitya by T. S. Venkannaya.

4. *History of Literature*:

An account of the life and works of the following authors together with those of the prescribed works:—

(i) Nagachandra.

(ii) Rudra Bhatta

(iii) Akka Maha Devi.

(iv) Harihara.

(v) Chatu Vithalanatha.

(vi) Ratnakara Varni.

PART II (b)—KANNADA—1962.

Paper III:

1. Ramakrishna Paramahamsa by Masti.

2. Shantala by K. V. Ayyar.

PART III—BRANCH XII—KANNADA

Papers I and II—1961.

Paper I.

History of Literature—

Kannada Sahitya Charitre by Dr. R. S. Mugali (For consultation: Kavi Charite, Volumes 1 and 2 by Narasimhachar).

Paper II.

History of Karnataka and Culture—

1. Kannada Nadina Charitre, Parts 1 to 3 (Kannada Sahitya Parishat, Bangalore).

2. Popular Culture of Karnataka by Masti Venkatesiengar.

For Consultation—

1. Heritage of Karnataka by R. S. Mugali.

2. Karnataka Darshana (Commemoration Volume in honour of R. R. Diwakar).

Papers III to VI—1962.

Paper III.

Prescribed Text-books I—

1. Adipurana (Pampa)—14th Aswasa (149 stanzas).

2. Kabbikara Kava (Andayya).

3. Sri Rama Pattabhisheka by Mahalakshmi.

4. Chitrangada by K. V. Puttappa.

Paper IV.

Prescribed Text-books III—

1. Ramaswamedha—Chapters 1 to 7.

2. Veni Samhara Nataka Prati Krti.

3. Bhasa Bharata Chakra by L. Gundappa.

4. Jeevana Soundarya mattu Sahitya by D. V. Gundappa.

5. Rayachur Vijaya by Krishnappa (Vasantha Malike Fublication, Mangalore-3).

Paper V.

Grammar, Prosody and Poetics—

1. Sabdasmriti by Naga Varma.

2. Portions relating to Prosody and Poetics from Kannada Kaippidi (Mysore University Publications).

Paper VI.

History of Language and Elements of the Dravidian Comparative Grammar—

1. History of Kannada Language by Narasimhachar.

2. Kannada Bhasha Shastra by R. Y. Dharwadkar.

3. Kannada Varnagalu by Sediyapu Krishna Bhat (Kannada Research Institute, Dharwar).

B.A. & B.Sc.

PART II (a)—MALAYALAM—1961.

Paper I.

1 and 2. Selections from Niranam Works and Cherusseri: Published by the University.

3. Unnayi Variyar	**Nalacharitam Rantamdivasam: Publishers: Mathrubhumi, Kozhikode.**

4. Cherutiyil Kunjunni Nambisan. Vikramorvasiyam—Publishers: Sahitya Parishat Book Stall, Ernakulam.

5. Vallathol Narayana Menon .. Sahityamanjari Part III—Publishers: Vallathol Grandhalayam, Cheruthuruthi, Kerala.

6. Vailoppillil Sridhara Menon .. Kannikkoythu (Following titles only: 1. Mampazham, 2. Vasantham, 3. Assam Panikkar, 4. Kaakka, 5. Sahyante Makan, 6. Paschima Samudram—Publishers: National Book Stall, Kottayam.

7. N. V. Krishna Variyar .. Kalotsavam—Publishers: Book Depot, Kozhikode.

8. M. P. Paul .. .. .. Sahitya Vicharam—Publishers: National Book Stall, Kottayam.

Paper II—1961.

1. V. C. Raman Pillay .. .. Martanda Varma—B. Book Depot, Trivandrum.

2. P. K. Narayana Pillay .. .. Smarana Mandalam—Publishers: P. K. Memorial Press, Trivandrum.

PART II (b)—MALAYALAM—1961.

Paper—III.

For Consultation—

1. N. Krishna Pillay .. .. Kairaliyute Katha—Publishers: Sahitya Parishat Mudranaalayam, Ernakulam.

2. P. K. Parameswaran Nayar .. Malayala Sahitya Charitam—Publishers: Mathrubhumi, Kozhikode.

PART III—BRANCH XII—MALAYALAM, 1961.

(Papers I and II.)

Paper I.

History of Literature—

(A study of only the outlines of the History of Malayalam Literature is expected).

The following books are prescribed—

1. Dr. C. A. Menon .. Pradakshinam—Published by The Lokavani Publication —Tambaram.
2. P. K. Parameswaran Nayar. Adhunika Malayala Sahityam—Published by Sri Rama Vilasam Press, Trivandrum.

Books recommended for consultation—

1. Ullur S. Parameswara Iyer. Kerala Sahitya Charitram (A parts)—Published by the University of Travancore.
2. T. M. Chummar .. Bhasha Gadya Sahitya Charitram—Published by National Book Stall, Kottayam.

Paper II.

History of Kerala and Culture—

No Text-books prescribed.

Books recommended for consultation—

1. The Chera Kings of the Sangam age by K. G. Sesha Iyer.
2. Chronology of the Early Tamils by K. N. Sivaraja Pillai.
3. Kerala Charitrathile Iruladainja Edugal by Elankulam Kunjan Pillai.
4. Chila Kerala Charitra Prasnangal by Elankulam Kunjan Pillai. (All parts)
5. History of Cochin, Volumes I & II by K. P. Padmanabha Menon.

6. Travancore State Manual, Volume II by T. K. Velu Pillai.
7. Malabar Manual by Logan.
8. Malabar and the Portuguese by K. M. Panikkar.
9. Malabar and the Dutch by K. M. Panikkar.
10. The Portuguese Pirates by O. K. Nambiyar.
11. Koothum Kudiyattamum by Ammaman Thampuran.
12. Kudiyattam by Sri Narayana Pisharoti.
13. Keralathile Nadodi-Natagangal, University Publication.
14. Land of Perumals by Francis Day.

(Papers III to VI—1962.)

Paper III.

Prescribed Text-books I (Upto and including Ezuthachan)—

1. Ramacharitam, First 10 Patalams.	Edited by P. V. Krishnan Nayar.
2. Kannassa Ramayanam Balakandam: First 100 Verses.	Any Press.
3. Kuchela Gathi ..	By Cherusseri 400 Lines.
4. Mahabharatam, Santhi Parvam.	By Thunchathu Ezhuthachan.
5. Unnuneeli Sandesham, Poorva Bhagam.	Any Edition.
6. Pracheena Malayala Gadya Matrukakal.	Edition by Dr. P. K. N. Pillai.
7. Uttara Ramayana Gadyam, Part I.	By Cochin Bhasha Parishkarana Committee.

Paper IV.

Prescribed Text-books II (Post-Ezhuthachan Period)—

1. Malayalam Kollam, First two Sargas.	By Kochunni Thampuran.

2. Kirmeera Vadham .. By Kottayathu Thampuran.

3. Uttara Rama Charitam. By Chathukutti Mannadiar.

4. Karnabhooshanam .. By Ullur S. Parameswara Iyer, Ullur Publication, Jagati, Trivandrum.

5. Nirmala .. .. By Venni Vasu Pillai, National Book Stall, Kottayam.

6. Sahitya Vicharam .. By M. P. Paul, National Book Stall, Kottayam.

7. Kalaiyum Kalavum .. By Dr. Bhaskaran Nayar.

Paper V.

Grammar, Prosody and Poetics—

1. Grammar .. .. Kerala Paniniyam.

Omitting Peetika and the detailed discussion of the various grammatical theories. Only the study of the principles to be emphasized.

2. Prosody—Vritta Manjari.

3. Poetics—Bhasha Bhooshanam.

Paper VI.

History of Language and Elements of the Dravidian Comparative Grammar:—

Prescribed—

1. Kerala Bhashayute. By Elankulam Kunjan Pillai. Vikasa-Parinamangal.

2. Evolution of Malayalam. By Dr. A. C. Sekhar.

For consultation—

Comparative Grammar of Dravidian Languages by Dr. Caldwell.

CHAPTER XLIV

Degree of Bachelor of Science in Home Science (B.Sc. Home Science)

1. Candidates for the Degree of Bachelor of Science (Home Science), shall be required to have passed the Pre-University Examination of this University or an examination accepted by the Syndicate as equivalent thereto and to have subsequently undergone a prescribed course of study in a Constituent or Affiliated College of this University for a period of not less than three academic years or nine terms.

Course of study. 2. The course of study shall comprise the following subjects according to syllabuses to be prescribed from time to time.

PART I

English

The course of study shall extend over a period of three years, the third year being dovoted to the training of students in communications including radio talks, public speaking etc., for which no examination will be held. The examination will cover the text-books prescribed and will be held at the end of the second academic year.

PART II

A Second Language

The course shall comprise the study of any one of the following languages. The course of study shall extend over a period of three years, the third year

being devoted to the training of students in communications including radio talks, public speaking etc., for which no examination will be held. The examination will cover the text-books prescribed and will be held at the end of the second academic year.

Classical: Sanskrit, Greek, Latin, Arabic, Persian, Hebrew and Syriac.

Foreign: French, German, Burmese and Sinhalese.

Indian: Tamil, Telugu, Kannada, Malayalam, Urdu, Marathi, Oriya, Hindi, Bengali and Gujerati.

PART III

The course of study shall be as follows:

Group A

Physical Sciences (Chemistry and Physics).
Physiology and Bacteriology.

Group B

Foods and Nutrition.

Home Management.

Clothing and Textiles.

Child Development and Psychology.

Sociology.

3. The scheme of examination shall be as follows:

Scheme of Examination.

PART I

English

There shall be two papers, each of three hours' duration carrying a maximum of 100 marks each

	Hours	Marks
Paper I (Prose and Poetry) ...	3	100
Paper II (Composition) ...	3	100

Candidates shall take the two papers at the end of the second year.

PART II

A Second Language.

There shall be two papers, each of three hours' duration, carrying a maximum of 100 marks each.

	Hours	Marks
Paper I (Prose and Poetry) ...	3	100
Paper II (Composition) ...	3	100

PART III

The scheme of examination shall be as follows:

	Hours	*Marks*
Group A.		
1. Physical Sciences (Chemistry and Physics).	3	100
2. Physiology & Bacteriology.	3	100
Group B.		
3. Food & Nutrition (Written).	3	100
4. Home Management (Written).	3	100
5. Clothing & Textiles (Written).	3	100
6. Child Development and Psychology.	3	100
7. Sociology	3	100

Practical Examination.

		Hours	Marks
Foods and Nutrition	...	3	40
Home Management	...	3	40
Clothing and Textiles	...	3	40
Practical Record Books—			
Foods and Nutrition	...	...	10
Home Management	..	...	10
Clothing and Textiles	...	...	10
		Total ...	850

Each candidate shall sbumit her practical record books containing the record of all her practical work performed during the period of her study. The records shall be countersigned by the Professor under whom the candidate worked to certify them to be *bona fide* records of work performed by the candidate. The record books shall be submitted by the 31st January of the year of appearance to the Examiners conducting the examination, and the allotment of marks on the practical record books shall rest with the examiners.

Candidates shall take Group A at the end of the second year and Group B at the end of the third year.

Conditions of eligibility of a candidate for the Degree.

4. No candidate shall be declared eligible for the Degree of Bachelor of Science in Home Science unless She has completed the course of study prescribed and passed the examinations in the several subjects of the course of study as detailed in the Regulations aforesaid.

5. A candidate shall not be declared eligible for the Degree of Bachelor of Science in Home Science

unless She has passed the examination in English under Part I, in the selected language under Part II, and in the subjects under Part III.

6. A candidate for the Degree of Bachelor of Science in Home Science shall be declared to have passed—

(i) in Part I of the examination, if She obtains not less than 35 per cent of the marks.

A candidate who obtains not less than 60 per cent of the marks in Part I shall be declared to have passed Part I of the examination with distinction.

(ii) in Part II of the examination, if She obtains not less than 35 per cent of the marks.

A candidate who obtains not less than 60 per cent of the marks in Part II shall be declared to have passed Part II of the examination with distinction.

(iii) in Part III of the examination, if She obtains not less than 35 per cent of the marks in each of the subjects.

Candidates who obtain 60 per cent or above of the total marks in Part III shall be placed in the first class. Successful candidates who obtain less than 60 per cont but not less than 50 per cent of the marks in Part III shall be placed in the second class. All other successful candidates in Part III shall be placed in the third class. There will be no classification for Parts I and II. A candidate securing not less than 75 per cent of the marks in Part III of the examination shall be declared to have passed in that Part with distinction.

Symbolic representation shall be adopted in declaring the results in Part III and a statement of detailed marks shall not be furnished.

Symbol A *plus* will denote 65 per cent and above of the marks but below 75 per cent of the marks.

Symbol A will denote 60 per cent and above of the marks but below 65 per cent.

Symbol B *plus* will denote 55 per cent and above of the marks but below 60 per cent.

Symbol B will denote 50 per cent and above of the marks but below 55 per cent.

Symbol C *plus* will denote 45 per cent and above of the marks but below 50 per cent.

Symbol C will denote 35 per cent and above of the marks but below 45 per cent.

Symbol D will denote distinction as having obtained 75 per cent and above of the marks in Part III; provided the candidate passes the whole examination at one sitting.

Symbol F will denote Failure.

7. Candidates who pass the Intermediate Examination shall be eligible to be admitted to the second year of the Three-year Degree course.

This Transitory Regulation shall be in force for a period of five years after the introduction of the Three-year Degree course

8. Candidates who have undergone the course of study and appeared for the examination or been exempted to appear for the examination under the Regulations in force prior to the academic year 1958, shall be permitted to complete the examinations under those Regulations. This Transitory Regulation shall be in force till the Examination of March, April 1964.

SYLLABUSES.

SYLLABUS IN PHYSICAL SCIENCE.

A. Chemistry

(1st year: 4 hours a week.)

(2nd year: 2 hours a week.)

General and Inorganic.—Avagadro's hypothesis, Relation of gaseous and vapour densities to Molecular Weight, Gram Molecular Volume. Influence of concentration, temperature, pressure and catalytic agents on chemical reactions in general. Laws of osmotic pressure, depression of freezing point and elevation of boiling point —Gaseous dissociation—Electrolysis—Electrolytes—Non-electrolytes. Elementary treatment of ionic theory. Catalysis—characteristics of catalytic reactions—Poisons—promoters—autocatalysis—Elements of Photo Chemistry—absorption spectra and chemical considerations. Elementary treatment of colloids—pH and its significance—Modern views on the structure of the Atom—Radioactivity—Occurrence preparation, properties and important uses of the following :

Ozone, Hydrogen Peroxide, Halogens including halogens hydracids and their salts. Sulphur dioxide, sulphur trioxide, sulphuric acid and sulphates. Oxides of Nitrogen, Nitrous acid, Nitric acid and their salts. Phosphoric acid—Phosphates, carbon—fuels, Extraction of metals (general) Characteristics, properties and uses of the alloys of Copper Magnesium, Zinc, Aluminium, Tin, Antimony, Lead, Iron and Chromium.

Organic.—Methods of purification of Organic compounds. Qualitative detection of the elements Carbon, Hydrogen, Nitrogen, Chlorine and Sulphur. Empirical formula, Molecular formula and Isomerism. Petroleum Industry—Methane, Ethane, Ethylene and Acetylene. Methyl and Ethyl halides, Chloroform, Iodoform, Methyl and Ethyl Alcohols, Ether. Formaldehyde, Acetaldehyde, Acetone, Acetic Acid and Ethyl Acetate, Acetamide, Amines, Glycerol, Oils. Fats, Soaps and Candles. Lactic, Citric, Tartaric and Pyruvic acids, Coal tar distillation—Preparation, properties and uses of Benzene, Nitro-benzene, Amiline, Diazo compounds, Phenols, Cresols, Toluene, Benzyl Alcohol, Benzaldehyde, Benzoic acid, Indigo and Napthalene, Sulphanilamide, Aspirin and Saccharin.

Elementary ideas of alkaloids.

Chemistry and metabolism of Carbohydrates, Fats and Proteins.

PRACTICAL

I. Reactions of acid and basic radicals limited to :—Halide, Sulphite, Sulphate, Nitrite, Nitrate, Carbonate and Phosphate.

Silver, Mercury, Copper, Tin, Iron, Chromium, Aluminium, Zinc, Nickel, Magnesium, Sodium and Ammonium.

II. *Volumetric.*—Simple exercises in Volumetric Analysis.

Acidemetry and Alkalimetry:—

Determination of the strength of HCl or H_2SO_4

Determination of the strength of KOH or NaOH

Determination of a Carbonate and a Bicarbonate in a mixture—Indicator method.

Permanganimetry.—Determination of the strength of Permanganate solution with (*a*) Oxalic acid. (*b*) Ferrous Ammonium Sulphate

Iodimetry.—Determination of the strength of a solution of Copper Sulphate.

III. *Action of heat and air on.*—Copper, Silver, Aluminium, Tin, Iron and Common alloys—Brass, Bronze and Chrome Steels.

IV. *Effect of acids, alkalies and common salts on.*—Aluminium, Copper, Iron, Lead, Nickel, Silver, Tin and Zinc.

V. *Organic.*—Determination of Melting and Boiling Points.

Detection of Elements.—Carbon, Hydrogen, Nitrogen, Sulphur and Halogens.

Simple reactions of the Hydroxyl, Aldehyde, Carboxyl, Ketone. Amino, Nitro, Phenolic and Amido groups taking as examples Ethyl alcohol, Acetaldehyde, Acetic acid, Acetone, Aniline, Nitrobenzene, Phenol and Urea.

Preparation of Simple organic substances.—Iodoform, Ethyl Acetate, Methyl Orange.

VI. *General.*—Determination of the Hydrogen ion concentration using indicators. Preparation of (*a*) Soaps, Detergents and Germicides. (*b*) Metal, leather, wood and floor polishes. (*c*) Perfumes and Cosmatics.

B. PHYSICS

(1st year: 2 hours a week)

(2nd year: 2 hours a week)

Introductory.—Physical quantities, their units and measurements. Displacement, Velocity, Acceleration 'g' Momentum—Newton's Laws of Motion—Force work, Power and Energy.

Properties of Matter.—Uniform Circular motion—Centrifugal and Centripetal forces—applications to Centrifuges—Cream separaters—Drying clothes in Laundry machines—Sugar crystallisation etc.

Engine Governors.

Laundry Machines.

Simple Machines—balance, weighing machines, levers etc. Friction—Sliding and rolling friction—their advantages and disadvantages.

Viscosity of fluids—Its applications—Effect of temperature—City Water Supply—Hydrants.

Pumps—Water pumps and air pumps—Gauges and meters (water meters, Gas meters, and Electric meters).

Turbines.

Faucets.

Heats.—Thermometry—High and Low Temperature measurements.

Expansion—Practical applications.

Specific Heats and Latent Heats.

Liquefaction of air (Oxygen, Nitrogen and Ammonia).

Dry Ice—preparation and uses.

Refrigerating machines and cold storage.

Humidity and Air conditioning—heating devices.

Modes of Transmission of Heat—Their applications.

Pressure cookers, Fireless Cockers, Solar Cookers.

Incubators—Thermos Flask.

Light.—Intensity of illumination—Illumination of rooms.

Optical Instruments—Microscope, Telescope, Epidiascope, Binoculars and Stereoscopes.

The Eye—Its defects and correction.

Photography.

Motion pictures—Movie Camera.

Special Character of light—its relation to physiological and active properties.

Sound.—Transverse and Longitudinal waves.

Laws of Transverse Vibrations of strings.

Resonance.

Musical Instruments—Veena, Violin, Harmonium, Piano, Flute, Mridangam, Organ pipes.

Gramophone, its principles—Disc recording.

Electricity.—Friction Electricity—Lightning and Thunder.

Lightning arresters—Principles of condensers.

Simple Instruments for measuring current resistances and E.M.Fs.

Heating Effect of Electric Current—Its applications—Filament lamps, Neon lightning, Arcs, Electric cooking appliances.

Electric Wiring of houses and fuses.

Chemical Effect of Electric current—Its applications.

Electroplating (Copper, Silver, Gold, Nickel, Chromium).

Magnetic Effect of Electric Currents.

Recording and Reproduction of Sounds.

Principles of Generators and Motors—AC and DC—Application to fans, Vacuum cleaners, motor cars, tram cars, electric trains, etc.

Induction Coils, Transformers, Microphones, Telephones, Telegraphy.

Discharge of Electricity through Gases.

X-rays and their applications.

Nuclear Energy and its applications (elementary).

Elements of Radio-Activity—Radio and Television.

Practical Experiments.

1. Balance—Weighing.
2. Specific Heats of liquids and solids.
3. Latent Heats of Steam and Ice.
4. Photometry.
5. Sonometer.
6. Ohm's Law—Measurement of Resistance.
7. Measurement of Current—Tangent Galvanometer.

8. Potentiometer—Comparison of E.M.Fs.
9. Joule's Law.
10. Copper Voltameter.

Group Experiments (Demonstration) :—

1. Photography.
2. Electroplating.
3. Tinning.
4. Soldering.
5. Testing of Fuses, etc.
6. Changing of Washers.

SYLLABUS IN PHYSIOLOGY

(2nd year: 4 hrs. a week).

Theory.

Introduction and Cell Physiology.—Structure and organization of cells and properties of protoplasm.

Tissues.—Histology of the tissues and their distribution in the body. Blood and Lymph, heart and circulation.

Blood and lymph.—Composition of blood : red blood cells, and haemoglobin, white blood cells and platelets ; clotting.

Blood grouping and transfusion.

Blood formation and destruction.

Composition of lymph.

Heart and Circulation.—Structure of heart and blood vessels working of the heart ; blood flow ; cardiac and circulatory reflexes ; pulse and arterial pressure.

Respiration.—Structure of respiratory organs, mechanism of respiration; gaseous exchange in lungs and tissues; acid base balance; nervous and chemical control of respiration anoxia, asphyxia; artificial respiration.

Digestion.—General anatomy of the digestive system; more detailed study of structure of stomach, small intestine, pancreas and liver.

Movements of alimentary canal.

Mechanism of secretion, action of enzymes, absorption Kidneys and Excretion.

Structure of Kidney and tubules.

Urine formation and composition ; micturition.

Renal mechanism in acid base balance.

Skin and body temperature.

Elements of muscle physiology.—Mechanical and chemical change, during muscular contraction.

Work and efficiency.

Nervous system.—General anatomy of the nervous system (Central and autonomic).

Fundamental principles of nervous control : reflex actions regulation by higher centres, relation to muscle action, review of relation to circulatory, respiratory and digestive functions.

General mechanisms of sensation and perception, with special emphasis on Vision and hearing.

Endocrinology.—General principles of hormonal secretion and control with special reference to growth, metabolism and reproduction.

Reproduction.—General anatomy of male and female reproductory organs, Puberty : hormenal activity in male and female. Development of grafian follicle; ovulation ; Ovarian and Uterine cycles and their regulation fertilization, implantation, pregnancy, foetal membranes parturition; lactation and its regulation.

Body defenses against disease.—Localization of infection: inflammation; phagocytosis Immunization ; antigens, antibodies.

Practical.

Cells and tissues, general anatomy.—Cells—demonstration of cell types.

Tissues—Detailed study of epithelium of stomach, intestine, pancreas and liver.

Kidney, striated muscle, nerve cell and fibres ovary.

Demonstration of connective tissue, bones, blood vessels, trashes and lung.

Skin, testis, uterus.

Demonstration dissection of mammalian Viscera.

Blood.—Blood cells—fresh mount and stained smear ; demonstrations of Haemoglobin estimation and coagulation.

Heart.—Anatomy of sheep's heart ; experiments with frog's heart—normal beat, effects of temperature.

Demonstrations of refractory period, stannuis ligature, effect of vagus stimulation.

Respiration, Circulation and body temperature.—Respiratory volumes; respiratory and pulse rates and temperature changes in exercise.

Oral and rectal temperatures.

Demonstrations of graphic record of respiration and arteria blood pressure.

Digestion.—Salivary digestion.

Demonstration of rhythmic movements of small intestine (rabbit).

Excretion.—Qualitative tests of urinary.

Constituents on 3-hour sample.

Nerve.—Muscle physiology.

Demonstration of brain and spinal cord.

Demonstration of gastrocnemius nerve—muscle preparation, simple muscle twitch.

Experiments on muscle contraction : load and work ; tetanus; fatigue.

Reflex action—spinal reflexes in frog; human reflexes.

Sensation : Experiments to demonstrate tactile sensations, taste, smell, demonstrations of sochlea and retinea.

Reproduction.—Demonstrations of mammalian reproductory organs pregnant mammal and foetus.

SYLLABUS FOR BACTERIOLOGY.

(2 hours a week in II year).

Theory.

1. General characteristics of bacteria, yeasts and moulds.

2. Distribution of microorganisms—air, water, soil, sewage, milk and milk products, fruits and vegetables, meat, fish and eggs.

3. Microorganisms in fermentation and decay. Common antibiotics.

4. Pasteurization, sterilization and disinfection.

5. Microorganisms and food preservation—Need of food preservation—Methods of food preservation—Heat—Cold—Drying—Preservative substances.

6. Food poisoning and food infection.

7. Microorganisms and health—Disease transmission—Immunity—Types of immunity—Acquired immunity—The nature of acquired immunity (active and passive).

8. Hypersensitiveness—Allergy.

9. An elementary knowledge of the common infectious diseases caused by bacteria, virus and protozoa.

Practical.

1. Microscopic examination of bacteria, yeasts and moulds (Mucor, Aspergillus, Penicillium).

2. Use of simple stains in the study of bacteria.

3. The nutrition of bacteria—Preparation of nutrient broth and nutrient agar.

4. The technique of pure cultures—Isolation and cultivation of bacteria.

5. Bacteriological examination of air, water, milk.

6. Pathogenic bacteria.

7. Excursions to milk factories, sewage farm, and water works and research institutes.

Syllabus in Foods and Nutrition.

First Year.—(3 hrs. per week.)

General Plan.—A study of food selection, preparation and service with the purpose of improving the nutrition and health of the individual.

A study of the nutrition needs of the family.

Selection of food for the family within different income levels and observation of the problems involved in the improvement of nutritional practices in a community.

Experience in the preparation of foods with attention to the reservation of nutritive values, using cooking methods generally

employed in Indian homes. Practice in the preparation of food for the family.

Theory (1 hr. per week).

1. The relation of good nutrition of normal physical development and sound health.

2. Food groups which will provide the nutritive requirements for normal health ; body building foods ; energy foods ; protective foods.

3. A study of cooking methods and how they may be used properly to preserve the nutritive elements in foods—Advantages and disadvantages of different cooking methods—boiling, steaming, stewing, frying, broiling, parching, baning and cooking under pressure.

4. The source, manufacture, food composition and nutritive value of common foods.

(*a*) Beverages.

(*b*) Cereals—structure of cereal grains—results of over-milling and over-washing; parboiled rice; comparison of the food values of ragi, wheat and rice.

(*c*) Pulses—dhals, grams, soya beans, field beans and peas—their limitations as only source of protein in the diet—values of germination.

(*d*) Fruits—cleanliness in preparation and serving seasonal fruits—plantains, mangoes, citrus fruits, papaya, melon, guava, amla and other common fruits.

(*e*) Vegetables—cleanliness in preparation, leafy vegetables, roots and tubers, salad vegetables and other vegetables.

(*f*) Flesh foods—quality of meat, poultry and fish ; food value of liver.

(*g*) Eggs.

(*h*) Milk and milk-products—bacteria in milk—pasteurisation of milk—sanitary milk production and testing.

(*i*) Nuts—coconuts, groundnuts, cashews, almonds, walnuts and others.

(*j*) Spices and condiments—their uses and abuses.

5. Sanitation requirements in the procurement and use of water and foodstuffs in the home.

(*a*) Rules in personal hygiene for working with food and water—food and water borne diseases.

(*b*) Cleanliness in the kitchen and food storage areas—recent developments in storage practices.

(*c*) The control of insects and rodents in the food supply, preparation, storage and serving areas—diseases carried by insects and rodents.

(*d*) The particular care needed in the provision of hygienic water supply and food supply for babies.

6. The basic food requirements of children and other members of The family including all ages.

7. the energy requirements of the body and foods high in energy values.

8. Body building foods, the protein requirements of family members of all ages.

9. The body's requirements for minerals. Foods which will provide sufficient minerals.

10. Vitamin requirements—functions in relation to health.

(*a*) Fat-soluble—A group, D group, others.

(*b*) Water-soluble—B Group, C Group.

(*c*) Foods rich in vitamins—how to avoid losses in storage, preparation, cooking and serving

11. The effect of food preparation and service on healthy food habits and the factors involved in building a good appetite.

12. A study of the nutritive values of foods in relation to cost ;

(*a*) Energy rich foods.

(*b*) Protein rich foods.

(*c*) Foods providing minerals and vitamins with special attention to those most apt to be deficient in the diet.

13. Planning meals for the family at different income levels; calculation of food values and planning the storage, preparation, cooking and serving of the food for the greatest retention of food values at the

(*a*) Minimum income level for subsistence.

(*b*) Low income level.

(*c*) Medium income level.

14. A study of the problems involved in the improvement of nutritional practices in a community.

Practical (one 2-hour period per week).

1. A study by each student of her own status of health and evaluation in relation to the "Signs of good nutrition" (See reference list.

2. An introduction to the use of kitchen and dining equipment—sanitation requirements for washing dishes, vessels and utensils and the care and cleaning of equipment. Preparation of coffee, tea and cocoa.

3. Examination of rice—the composition and structure of grains. Preparation of rice—boiled and steamed (Rukmani Cooker)—preparation of rasam (pepper water).

4. Preparation of other cereals and cereal products commonly used in India—ragi and wheat.

5. Tests for carbohydrates, proteins and minerals in common foods. Tests for calcium, iron and total ash.

6. A study of the composition and food value of dhals, grams, soya beans and nuts. Preparation of pulses—sambar, sprouted green gram, sundal and thick dhal preparations.

7. A study of safe sources of milk—safety in handling milk; preparation of milk dishes such as custards, payasams, curds and kesari milk.

8. A study of the contributions of fruits to the diet—cleaning, preparing and serving fruit and retaining the food values through proper handling. Preparation and service of raw fruits and salads.

9. A study of the nutritive contributions of vegetables in the diet—cleaning, cooking and serving vegetables. Preparation of avial, curry, pachadi and kurma.

10. A three-day dietary study by each student to determine if foods from each basic group are included in her daily meals.

11. Preparation of energy rich foods such as iddli, dhosai and fried foods—methods of testing fat temperatures for frying.

12. Preparation of protein rich foods—temperature controls in cooking the following :—

(*a*) Milk products such as cheese and tomato, cauliflower cheese and cheese in dhal curries.

(*b*) Eggs—scrambled eggs, omelette and egg curry.

(*c*) Meat (including liver) fish and fowl or protein rich vegetarian dishes—cereal and protein combinations as pilav and briyani.

13. Food preparation and the study of comparative costs in relation to food values.

(*a*) Energy values in relation to cost—

Simple rice, ragi and wheat compared with pilav, briyani and meals with sweets as payasams, mysore pak and somas.

(*b*) Protein values in relation to cost.

Comparison of meat, fish, poultry.

Dhals, kootus, masseels and chutneys.

(*c*) Mineral values in relation to cost—

Greens preparations, dhals and liver, ridgegourd, clusterbeans and drumsticks.

(*d*) Vitamin values in relation to cost—

Greens and other vegetables, fruits, milk, liver, dhals or grams.

14. Preparation of foods available as supplementary to the predominently cereal diet, i.e. powdered milk, cheese, dried beans and peas.

15. Preparation and service of meals for the family :—

(*a*) A meal planned to emphasize the provision of adequate protective foods.

(*b*) A meal for the family including foods suitable for pre-school children and old age.

(*c*) A meal for the family on the minimum income level—low income level—medium income level.

16. Field trip to observe nutrition work being done in a community ; conference with workers concerning problems faced in this programme.

3rd Year—(6 hours per week).

General Plan.—A thorough study of the food needs of the individual in regard to age, build, sex and activities. The relationship of food to physical, mental and general health.

Planning and preparation of meals for the family to meet special dietary needs.

A study of cooking methods illustrating their effect on the nutritive value of foods. Determination of nutritive values by chemical tests.

Calculation of the food values of the dietaries planned, prepared and served.

Emphasis on organization, management of time, marketing and cost of food in relation to food value.

Improved sanitation practices in the handling and storing of food and equipment. Scientific methods of storing and preserving foods.

Observation of small animals used for demonstration of the effects of adequate and inadequate diets.

Observation of activities both rural and urban which are designed for the improvement of nutrition practices.

Theory (Two hours per week).

1. Energy needs of the body—effect of age, build, sex and activities.

2. Calculation of energy requirements in terms of calories and foods to supply them.

3. Basal metabolism—factors affecting metabolism, Demonstration of the measurement of the basal metabolic rate.

4. Body building foods—the protein requirement. The biological value of foods and how they may be used to supply adequate protein.

5. The specific dynamic action of foodstuffs.

6. Mineral metabolism and the functions of minerals in the body. Foods which may be used to supply the mineral needs of the body.

7. The vitamin requirements of the body, sources, functions and effects of deficiencies of vitamins.

8. Nutritive losses of foods in different methods of preparation, cooking and serving.

9. The relation of hormones to the body's use of different types of food.

10. The effects of food on digestion, absorption, elimination and the health of the digestive tract.

11. The differences in food requirements to meet special needs ;

(*a*) During pregnancy and lactation.

(*b*) For the child from infancy through the second year ; breast feeding *vs.* artificial feeding ; types of milk and how they should be

altered to meet the child's needs (cow, buffalo and goat milk). **Weaning.** Addition of other foods in the first and second year.

(*c*) For the pre-school child.

(*d*) For the child from 6 to 12 years and during adolescence.

12. A study of the factors involved in developing good food habits for young children—a review of new discoveries relating to the building of good food habits.

13. Modification of the normal diet to help in the prevention of dietary deficiency diseases. Special diets required in the treatment of these and other diseases with emphasis on diseases most common in India.

A study of dietaries for the following :—

(*a*) Deficiency diseases—vitamin, mineral and protein deficiencies. (*b*) Diabetes mellitus. (*c*) Disorders of the stomach and digestive tract. (*d*) Diseases of the liver and biliary tract. (*e*) Diseases of the heart and circulatory system. (*f*) Diseases of the urinary tract. (*g*) The importance of diet in the prevention and treatment of tuberculosis.

14. Menu planning, marketing and organization of work for food service for different occasions.

(*a*) Feasts—how these effect the daily dietary of the family—cost of these meals in relation to the total food budget.

(*b*) A study of food service and good manners—Indian style, other Asian styles and Western style.

15. Food preservation by scientific methods :—(1) storing, refrigeration, freezing; (2) open-kettle, water-bath and pressure canning; (3) preserving with sweets and spices ; (4) dehydration; (5) salting and pickling.

16. The use of kitchen gardens in helping to provide an optimum food supply for the family.

17. The use of so-called supplementary foods such as powdered milk and all-purpose food in the improvement of diets.

18. Food adulteration practices and methods of control—a review of pure food laws.

19. A study of schemes being executed in India for the improvement of nutrition practices—Five-year plans ; National Extension

Service; Village level worker's programmes, etc.—Field trips for observation.

20. A review of international schemes for the improvement of nutrition practices.

Practical.—Two—2 hour periods per week.

1. Estimation of nutritive values of foods and nutritional losses in different methods of food preparation.

A. Chemical tests—(1) quantitative estimation of sugar (2) quantitative estimation of total protein in foods (3) estimation of total ash and calcium (4) quantitative estimation if Vitamin C.

B. Demonstration experiments on the quantitative estimation of iron and carotene.

C. Experimental study of the effects of different methods of storage, preparation and cooking on the preservation of nutritive values, the appearance and palatability of foods : (1) rice and other cereals (2) pulses (3) milk and milk products (4) other protein foods (5) fried foods (6) vegetables, raw and cooked (7) fruits.

2. Demonstrations of the use of foods from a practical kitchen garden and their importance in improving the family food supply.

3. Demonstrations of the use of so-called supplementary foods such as powdered milk and all-purpose food, in the improvement of family dietaries.

4. Review of sanitation practices to be observed in the laboratory and kitchen and in the use and care of food and of utensils for cooking and serving.

5. Practice in the use of scientific methods of preserving foods.

(*a*) Preservation of fruits and vegetables by canning (1) open-kettle (2) water-bath and (3) pressure methods.

(*b*) Preservation by adding sweets and spices.

(*c*) Salting and pickling.

(*d*) Dehydration.

6. Planning, preparation and service of food and meals for family groups to gain experience in learning to cope with varying

dietary problems—calculation of food values provided by the meals prepared.

(*a*) Preparation of a low cost meal planned to emphasize proper cooking methods and attractive service.

(*b*) Preparation of meals planned to meet extra needs for pregnant and lactating mothers (1) low cost (2) medium cost.

(*c*) Preparation of foods for the infant and child through the second year—experience or demonstration in feeding an infant.

(*d*) Preparation of a meal for a family including foods suitable for a pre-school child and for old age.

(*e*) Preparation of a family meal including provision or increased requirements for the adolescent.

(*f*) Preparation of a low-cost meal planned with special attention to the inclusion of foods which will help prevent dietary deficiency diseases.

(*g*) Preparation of foods for diseases requiring special diets

(1) Diabetes mellitus—use of exchange lists.

(2) Disorders or diseases of the stomach and intestines, the heart and circulatory system, and the urinary tract.

(3) Fluid, soft and convalescent diets.

7. Planning, preparation and service of a meal for a special occasion—market list, organization of work—determination of cost and how it will affect the adequacy of daily meals of the family at different income levels.

8. Demonstration of food service and good manners for (1) Indian style (2) other Asian countries (3) Western style.

9. Field trips to rural and urban centres for the purpose of learning methods for furthering the improvement of nutrition practices.

SYLLABUS IN HOME MANAGEMENT.

FIRST YEAR

I. APPLIED ART.

(2 hours per week; 2 hour period if possible)

Objectives.

1. To help students understand the principles of design and colour.

2. To provide experience in the application of the principles of design and colour to planning pleasing surrounding for the home.

Theory.

A. Characteristics of good structural design; characteristics of good decorative design.

B. Principle of design:—

1. Harmony—Characteristics that may help to build a pleasing and unifying relationship: lime or shape, size, texture, ideas, colour.

2. Emphasis—Devices used to effect emphasis: repetition, contradiction, transition.

   Confusion or monotony resulting from over-emphasis.

3. Proportion—Importance of scale in design of furnishings and in successful combination of objects. The importance of proportion in providing for margins and placing illustration and slogans on posters.

4. Balance—Formal and informal or assymetrical balance. Ways to make an arrangement balance. Formal and informal schemes for garden plannings.

5. Rhythm—The use of repetition, progression in size and easily connected or continuous lines to achieve rhythmic effects.

C. Colour:—

1. Colour systems.

2. Qualities of colour; hue, value, intensity. The effect of texture on colour.

3. Schemes for using the colour systems for creating harmonious colour combination: mono-chromatic, analogous, complementary, split-complementary, triads.

4. Use of colour to create an illusion of space, warmth, coolness, size of an object.

5. The principle of emphasis and proportion applied to the use of colour.

D. Interior Decoration:—

1. The influences that affect the architecture of houses in India. Hindu, Persian, Chinese, European, Climatic: interior decoration in Indian houses during the las hundred years.

2. The selection of furnishings with regard to suitability of their design to their function (Indian and Western).

3. The selection of furnishings with regard to their relation to the architecture of the dwelling and to each other.

4. Using colour, texture and line to create an atmosphere, such as quietness, dignity, cheerfulness, informality.

5. Problems of combining the old and the new.

6. Window treatments and their effect on proportions and functions of the window.

E. Exterior Decoration:—

1. Laying out the garden.
   (*a*) Kitchen garden.
   (*b*) Flower garden.

2. Selecting seeds and plants.
   (*a*) Heights and shapes.
   (*b*) Colours.
   (*c*) Methods of propagation.

3. Caring for the garden.
   (*a*) Manuring; Preparation of compost.
   (*b*) Cultivation.

4. Caring for the lawn, hedges and trees.

Practical.

A. Classifying a number of objects as good or bad design explaining the reasons for the designation.

B. Finding illustrations of each in a painting, a rug, a printed fabric, a piece of furniture, a building, or a flower arrangement.

Examining posters, pictures, gardens. Show how the eye is drawn to some particular point. Prepare an arrangement of objects to illustrate emphasis.

Illustrating effect of proportion by showing proper size shade for a lamp; effect of small bouquet on large table, short-stemmed flowers in a tall vase, mounting a picture with proper margins and framing.

Making arrangement on a shelf in formal and informal balance. Arranging bouquets in formal and informal balance.

Finding illustrations of the various means of producing rhythmic effects.

C. Illustrating harmonious colour combinations in flower arrangements; costume, cushions, couch covers and rugs, walls, curtains and rugs; menus.

Plan for decorations suitable for some of the festivals. Making posters suitable for demonstrating some Home Science information.

D. Creating a centre of interest in a room such as, worship niche a beautiful hanging or vase.

Displaying pictures and other objects of art.

Arranging furnishings to promote ease of conversation.

Arranging furnishings to direct traffic through the home.

Making simple furnishings from the materials available in the home.

Repainting old furniture.

Making harmonious arrangements either with life-size, objects or scale models.

Practical in gardening to be extracurricular.

SECOND YEAR.

II. HOUSING THE FAMILY AND FAMILY HEALTH.

(3 hours per week; 1 lecture 2 hours practical).

Objectives.

1. To help students understand the elementary principles of planning and constructing houses.

2. To help students understand principles of maintenance that promote the health and comfort of the family.

3. To help the students learn techniques for care of illness and accidental injury in the home.

Theory.

A. Functions of the house and its site:—

Kinds of activities carried on by families within the home plot in relation to family objectives such as, raising vegetables and preparing food, providing for sanitary surroundings, promoting personal cleanliness, getting sufficient rest, effective studying, satisfuing worship.

Conditions that are favourable to carrying on the activities satisfactorily.

Changes in the activities and corresponding demands as the family grows up.

Types of possessions used to carry on family activities, problems associated with storing the possessions when not in use.

The minimum housing needs. Values to be considered in deciding the relative importance of other desirable housing features.

B. Possibilities and restrictions presented by the house site—

Effect of the dimensions of the site on the use of the lot and the design of the house.

Problems of levelling or terracing a site to promote case of maintenance of prevention of stagnant water or erosion after rains.

Utilization of full advantage of the orientation of the size to sun, breeze and access to the community.

Provision for privacy without sacrificing hospitable atmosphere.

C. Features of a dwelling contributing to comfort, safety, sanitation, convenience and beauty—

The rooms: their size, their orientation to sun and breeze, their orientation to the another for ease of circulation without cutting across activities in progress.

The location of doors, and windows to improve ventilation, to provide advantageous use of space in the room, to provide light with as little glare as possible.

The location of sources of artificial light with respect to the amount of light needed on the task and to the prevention of glare and shadow.

Provision for preventing the entrance of insects and rodents.

Provision for the prevention of theivery.

Various methods of providing for water and disposal of refuse in the parts of the house involving activities requiring such provision. Means of conserving water by preventing spillage and leakage from taps and vessels.

Storage space adapted to preserving the condition of articles and supplies stored: water, fuel, food supplies, dishes, utensils, cleaning supplies and equipment, clothing and household linens.

Arrangement within the area or room that permits an efficient manner of working.

Learning to read a house plan. Study of some plans for houses of different sizes; desirable features provided; location of artificial lights, storage units.

Study of directions from health units for building different common types of private latrine.

D. Building Materials and Practices—

Methods of creating illusions of space, schemes for expanding houses or adding features to the existing structure at a later date.

Relative costs of different types of roof construction, floor materials, windows and doors, electrical fittings, finishing hardware.

Construction features that aid housekeeping.

E. Maintenance of cleanliness, sanitation and order in the home—

Daily housekeeping practices that promote sanitation and order in the home.

Systematic provision for the less frequently occurring maintenance problems.

Simple household cleaners and polishes.

Cleaning and/or polishing the different metals used in homes wood surfaces and glass.

Purifying water for drinking purposes.

Methods of dealing with household pests such as flies, mosquitoes, bed-bugs, ants, weevils, cockroaches, moths.

Safe storage of insecticides.

F. Group action for securing and maintaining sanitary conditions in a community—

Means employed to obtain an adequate and pure water supply: locations of wells and reservoirs, provision for testing water, kinds of wells characteristics of good well construction.

Safe-guarding the water supply: sources of contamination, programmes of positive action to eliminate practices of groups and individuals which contributes to contamination.

Safe disposal of sewage and other waste; problems involved in maintaining public latrines.

Community measures for control of mosquitoes and flies.

G. Problems arising in making a decision between owning and renting a house—

Schemes for purchase of houses in the area.

Responsibilities of a property owner; advantages of ownership.

Advantages and disadvantages of renting.

Cost of owning and renting with respect to various levels of accommodation service included in the rent payment.

H. Town and Community Housing Development in India—

Government aids to slum clearance.

Structure, operation, and responsibilities of housing organisations.

Plans for provision for water and water disposal, markets, schools, playgrounds, community centres, etc., in each residential unit.

PRACTICAL.

Reading house plans.

Set up an exhibit showing how to store water carried into the house.

Arrange an efficient grouping of equipment and supplies for some household jobs such as laundry, sewing. Try them and suggest ways to improve them.

Visits to houses under construction. Study of the floor plan and the house.

Experience in daily housekeeping practices that promotes sanitation and order in the home sinks, drains, latrines, floors.

Study of systematic provision for the less frequently occurring maintenance problems—Experience in replacing fuses.

Experience in preparing simple household cleaners and polishes.

Experience in cleaning and/or polishing the different metals used in homes, wood surfaces and glass.

Experience in changing washers in taps.

Experience in purifying water for drinking purposes.

Experience in preparing kerosine oil emulsions.

Experience in use of spray guns, spray and other insecticides.

Observation of practices followed in combating household pests in the food laboratories, the hostels and homes.

Visit to some new housing developments. Note the provision for access to the lot, provision for water supply, and other features of the community lay-out. What features are added to the homes as rental rise?

Experience on living in a cottage for one week at least carrying full responsibility for the cottage.

Every candidate is expected to present a certificate from a recognised course in First Aid and in Home Nursing.

THIRD YEAR.

III. HOUSEHOLD ECONOMICS.

(5 hours per week).

Objective.

To help students understand the principle of planned housekeeping and home-making.

Theory.

1. Scope of the subject—

The aspects of House-keeping and Home-making.

The two Science and Art of planned family living.

Problem.—1. Illustrate planning—in terms of your week's activities month's and year's.

2. Human wants and their nature—

The concept of Marginal utility.

Law of Diminishing Utility and the Law of Substitution and their application—Principle of equi-marginal utility.

Wealth and its meaning—Types of wealth.

Problem.—Make as complete as list as possible of the wants of an individual. Classify them. How many are, in part at least, due to family existence ?

Make as complete as possible, a list of general values which the family-household contributes to members' such as education and security.

List items of household wealth (*a*) material items (*b*) personal items, such as personal satisfaction, personality increments, personal relationships.

3. Standard of Living—

Constituents of the Standard of Living—Different Standards.

Urban and Rural Standards.

Wages and Standards of Living.

State and Standards.

Indian Standard of Living.

How to raise the standard.

Problem.—Plan a survey of living standards at your institution.

Illustrate urban levels of living in the city for the different standards; and rural levels for the farm owner, labourer and tenant.

Find out the local rates of wages for unskilled day labourer, semi-skilled and skilled trades.

How far the legal minimum wage rates now imposed is helpful in raising the standard of living?

The effect of sales tax on standard and which standard.

4. Family Income—

Real Income and Money Income.

Sources of Income.

How to supplement the family income—subsidiary occupations; children as contributors.

The wage earner in the family.

Problem.—Analyse the items of real income of a family.

Reasons for mothers in working class families to work outside the home.

The chief occupations they follow locally, and their wages.

The possibilities of part-time gainful employment for the rural and urban housewife.

Wage earning children's contribution to the family purse.

" The wife contributes as much to the family real income as does the husband." State qualifying conditions, if any.

The relation between the money income of the family, and the choice of vocations by the minor members of the family.

Analyse the phrase "Economic Independence" applying it to the unmarried man or woman; the married man or woman.

5. Family Expenditure—

Family Income Management.

The family budget—its main items.

Engle's Laws of Consumption.

Budget studies. Money *versus* Commodity budget.

Financial records of the household. Their purpose and nature.

Waste in the household.

Family debts.

Problem.—Bases for the expenditure of the income.

List kinds of household consumption.

Social standards for expenditure; social co-operation in setting more rational standards, e.g., in your college community.

Compare the budget of an unmarried man with that of a married man in a City.

Drawing up a personal budget.

Family financial report.

The use of the expenditure—record in the planning of a budget.

The larger sources of waste and inefficiency in the family household.

Comment on " Parents should not overspend upon their children and incur debts they cannot themselves carry; children should not undertake to pay off an over-large burden of debt for education."

The advisability of borrowing for family capital equipments.

6. Household Production—

Household Production and national economy. Population.

The old self-sufficing home and the modern home.

Growing dependence of home or organised industry.

Significance of production and consumption for the home maker.

Problem.—"The household is strictly a business enterprise." Criticize or modify.

The household controls population in quantity and quality.

Malthus' principles of the growth of population.

"Household production will go, simply because it is not large scale production:" its application to India.

The money value of products produced by a housewife in a year of home-keeping.

The administrative and managing responsibilities of husband and wife in a typical household.

The psychological and economic hindrances to more rapid industrialisation of house work in India.

7. Labour in the Home—

The housewife—The chief labourer.

Advisability of outside career for woman.

The share of the husband and children in the house-work.

Labour saving appliances.

Leisure in the family.

Problem.—The worth of the housewife's services *versus*.

(*a*) outside employment.

(*b*) cost of hired services.

List items of work contributed by the individual student to the total upkeep of the family home.

Appraisal of small child's contribution to house work.

List the household tasks which a child usually undertakes—at 2, 3, 5 and 10 years.

A survey of the contributions to house work made by the man of the familiy in 20 or more households.

8. Saving in the Family:—

The family capital.

Need for saving.

Temporary and Permanent institutions for small and big saving—Savings' Bank, Post Office, Chit funds, Nidhis, Banks.

Banks—different kinds of accounts. How to open an account?

Cheques and their uses.

Insurance—its chief principles—Types of policies.

The best type of investment for the common family.

Inheritance and Bequest.

How to make a Will?

Problem.—List and classify all kinds of capital goods used by the household and find out fields in which household capital is increasing rapidly.

The amount of capital needed to start house-keeping.

Secure individual estimates as to household capital in homes you know best—as to its value, history of accumulation and annual replacement and repairs.

Period in the family cycle when best opportunities to save occur.

Methods of saving for a College student.

Criteria for judging a family investment.

A survey of different types of thrift and saving institutions in the community. Promissory note, mortgage, bonds, stocks and shares.

The influence of inheritance laws upon family.

The advantages of system of freedom of bequest, compulsory equal division and primogeniture.

9. Household Purchase—

When, Where and How to purchase?

Functions of money—General price levels—how to read cost of living Index numbers.

Consumer's surplus.

Markets; Fairs; Consumers' Co-operative Store with special reference to Triplicane Urban Co-operative Stores.

Cash purchase and credit purchase; Wholesale and piecemeal purchase; adulteration of food and other materials.

Consumer action in abolishing adulteration practices.

Influence of the taxes on articles of household consumption.

The main Indian Taxes.

Problem.—Study of food and clothing prices. Collection of family food bills for the week and studying accurately the food costs.

Comparison of local retail price and wholesale price for certain foods such as rice, dhal, ghee and oil for a period of three months.

Packaging economy in various sized containers of the same quality food.

Cost of packaging.

An estimation of the entire cost involved in the food service as related to food materials alone.

The problem of reducing food costs in a family with no hired worker; with one employee.

List foods which could be purchased annually monthly and weekly.

Use of cooked food service in India.

Comparison of the cost and utility of ready-made and home-made goods in clothing.

Evaluating a " bargain " in clothing.

A careful study of advertising methods.

10. Family Health, Sickness and Death Costs—

" Malnutrition reduces industrial efficiency;" Illustrate.

Madras Public Health Act.

Present Employee's Health Insurance Scheme.

Importance of vital statistics.

Problem.—Group ways of buying medical, nursing and hospital care.

Public Health services in the urban and rural communities of India.

The desirable equipments for a family medical chest.

Problem of aged persons without adequate incomes with special reference to India.

The principles that should guide families and society in the matter of funeral management and cost.

The cost of different types of burials.

N.B.—Students have to maintain a Record Book where they enter their observation.

CLOTHING & TEXTILES.

Objectives.

These courses in Clothing and Textiles aim to help students to study clothing from the standpoint of health, comfort and economy

and to understand the contribution of clothing to personality; to enjoy clothes as an expression of beauty and to use them for creative self expression.

The field of textiles and clothing divides into scientific and art phases. It opens many possibilities to those students who wish to use clothing in a general and aesthetic sense for their personal and family development.

First year.

(2 hours per week.)

This course will consist of discussions and practice in selection of textile fabrics and their identification through simple laboratory tests; technical information and laboratory practice to develop good buying habits and to encourage proper use and care of fabrics and clothing. It will also include visits to shops, factories, mills, museums, showing of appropriate films on textiles. Specific outline of material and processes to be included.

I. Selection of fabrics for garments—

A. Based on personal characteristics and needs related to colour, design, texture of fabric.

B. Based on knowledge of textile fabrics through study of:—

1. The nature of cotton, silk, rayon, linen, synthetics, fibre combination and wool;

2. Special finishes of fabrics, e.g., mercerizing, sanforizing, glazing, etc.

3. Kinds of weaves—plain, twill, Satin basket.

C. Based on size of budget and wise buying.

D. Based on knowledge of textiles available through—

1. Visits to cloth shops, mills, clothing factories, museums.

2. A review of all the stitches in Government Constructions.

3. Care of garments—

I. General storage and care.

II. Laundering and finishing.

Second year.

(3 hours per week).

This course includes elementary drafting of patterns, construction of clothing.

Specific laboratory processes to be included:

I. Drafting patterns and constructing garments—

(i) Studying body measurements.

(ii) Preparing material—Straightening and shrinking.

(iii) Finishing neck—facing, bias binding.

(iv) Finishing sleeves—hem, bias binding, cuff, facing, gathers.

(v) Drafting a sari petticoat—four or six gores.

(vi) Constructing a sari petticoat from pattern drafted.

(vii) Drafting bodice and sleeve blocks.

(viii) Adapting bodice and sleeve blocks to blouse pattern and constructing same.

(ix) Adapting bodice block to brassiere pattern and constructing same.

(x) Making one of the following household articles: door and window curtains, table cloth, cushion covers.

II. Chemistry of textiles—

(i) Simple chemical analysis of various fabrics.

(ii) Stain removal.

(iii) Laundering reagents and processes.

Third year.

(3 hours per week.)

A course to help students gain experience in dealing with clothing problems of families with special emphasis on the changing needs of growing children and the wise use of the clothing Rupee; construction of garments for various age levels.

I. Living within the clothing budget.

(i) How to select and buy clothing for a growing family at different economic levels.

(ii) Selecting colours, fabrics, designs and patterns suitable for different family members.

II. Constructing garments, and comparing cost of home constructed and tailor or ready-made garments.

(i) Infant and pre-school child.

1. Layette, including abdominal band, diaper, nightgown.

2. Garment using Carter neck, either on romper, frock or boy's shirt.

(ii) Grade school child—

1. Boy's shirt.
2. Girl's frock.

(iii) Adult man—

1. Paijama.
2. Shirt.

III. Care of clothing—

A. Simple mending—calico, flannel and print patches, darn.

IV. Designing original pattern for embroidery.
Application to one of above garments.

Second year.

CHILD DEVELOPMENT AND PSYCHOLOGY.

(Three hours per week; Lectures—2 hours, Observation, Tutorial, Film and Film discussion—1 hour.)

Objectives.

To help students—

1. develop an understanding of the psychological, biological and social development of the individual from infancy to adulthood.
2. develop a scientific attitude towards behaviour patterns in individual, family and community life.

Psychological Principles.

1. The meaning and Importance of childhood.
2. Methods of child study—

   (very briefly—mainly to help the student in her practical work).

   Observation, Experiment, Tests and Measures.

   Rating scales, Questionnaire, Case History.

   Long Period Biography.
3. Motivation and Learning—

   Unlearned motives.

Organic needs.

Effects of Learning.

Sensory and perceptual learning.

Ideas and meanings.

Maturation and Learning.

4. Psychological needs—

Affection, recognition, success, adventure, freedom and independence and security.

5. Play life; Imagination—

Theories of play.

Characteristics of play,

The significance of the play spirit and the different types of play.

Difference between the imagination of adults and children.

Value of imagination.

6. Habit and Habit Formation.

Psychological basis of habit formation.

Importance of habit.

Conditions of habit formation.

Maturity and habit formation.

7. Development of character—

Levels of Development.

The functions of the will.

The self-regarding sentiment.

Discipline—Rewards and Punishments.

Child Development.

8. The Right Beginnings—

(a) Care of the expectant mother.

(b) Laying good foundations—sound tissues, healthy sorroundings, sound habits.

9. The Infant—

Abilities, needs, learning, development, in the first year of life.

Feeding, bathing, clothing, sleep.

Play and toys.
Psychological relationships in the family.

10. The Pre-School child years 1 to 6.
Motor and physical development.
Language and intellectual development.
Social development.
Eating habits, toilet training, clothing.
Play and toys.
Behaviour problems.
Nursery school experience.
The Home and the Nursery School.

11. The child from 6–12 years—
Physical growth and skills.
Intellectual growth and activities—Interests.
Social Progress.
Sex interests and sex education.
Learning in school.
Health, food and sleep requirements.
Psychological needs in the family and in the outer world

12. Health care and safety—
Accidents and Prevention.
First Aid.
Children's illnesses, prevention, treatment, care.
General care of the baby and sick child.

Third year.

CHILD DEVELOPMENT AND FAMILY RELATIONSHIPS

(Five hours per week; Lectures 3 hours, observation, Tutorial, Film and Film discussion—2 hours)

Objectives.

(*a*) To develop greater understanding and appreciation of the home and family as basic to a satisfactory community life.

(*b*) To develop increased skills in achieving positive human relationships.

(c) To strengthen family living and develop greater appreciation of the problems of individual members of the family.

1. The family—the basic Social Institution—

   The place of the individual—man, woman and child in the family and their roles in society.

   The Family of the past.

   The Joint Family system.

   The Family today.

2. Preparation for Parenthood—

   Some principles of inheritance.

   Interaction of heredity and environment.

   Evidence from orphanages, twins, foster homes.

   The child's relationship with the mother.

   The influence of the father.

   The foundations of personality development laid in the attitude of parents to children.

   Maladjustment—The unconscious mental life.

   Introversion, rationalisation, repression, defence reaction.

3. The influence of relatives—

   Sibling relationships.

   Other adults in the family.

4. Authority and Discipline in the Home.

   Patterns of authority and discipline in modern families.

   The need for discipline in the home at all stages of development.

   Children's common difficulties—obstinacy, luing, stealing, truancy, bullying, cruelty.

   Delinquency: Correlated factors, readjustment.

5. The problems of Adolescence—

   Physical growth and changes.

   Health needs.

   New responsibilities and interests.

   Emotional and Social development.

   Psychological needs.

6. Sex Education—

   Prevailing attitudes to sex.

Sex problems of the adolescent and young adult.

The support of the family in the adjustment to these problems.

7. Marriage—

Motives for marriage.

Functions of marriage.

8. Personal development in relation to marriage—

Physical and mental health.
Emotional maturity.
Personality development.

9. Adjustments in Marriage—

The early period.

The arrival of children.

Physiological, domestic and social adjustments.

In-law relationships.

10. Factors affecting marriage relationships—

Religion.

Socio-economic influence.

Career and money.

11. Critical family situations—

Infidelity.

Desertion or divorce.

Alcoholism.

Responsibility towards exceptional children: physical and mental.

Early diagnosis, provision for their special needs.

12. Old Age—

The psychology of old age.
Family attitudes towards the aged.
Place of the aged in Indian Society.

13. The significance of the family in a democracy—

Community organisation and family life.

PRACTICAL WORK (TWO YEARS)

(a) A record of one child for two years—

Age.
Height and weight (every quarter).

Parents' Socio-economic status.

Number in the family.

Position in the family.

Class.

Progress in school.

Special abilities and disabilities.

Interests.

Play.

Temperament.

Social traits.

Conduct and discipline.

Leadership.

Any other information.

(*b*) A study of—

1. The routine in the home in physical matters and training in such matters.
2. The play activities of children of different age groups.
3. Companionship and Friendship.
4. Occasions which cause anger or temper tantrums and duration of these moods.
5. Occasion which cause amusement and laughter.
6. Common breaches of discipline and form and correction and punishment.
7. Children's fears.
8. Phantasy and imagination.
9. Concepts of God, right and wrong.
10. Children's drawings.
11. Children's collections.
12. Children's first reactions to school.
13. School health programmes.

Visits to Health Centres, Nursery Schools, Primary Schools Playgrounds.

Entertaining children with story telling, games and other types of recreation.

Making toys for children.

(Items 2 to 13 may be undertaken as group work, and the different age levels compared. Each group will cover a few aspects only).

SOCIOLOGY.

First year

(2 hours per week.)

Objectives—

(*a*) To make the students aware of the society in which they live and their contact with it in its various aspects.

(*b*) To develop appreciation of and pride in their society.

(*c*) To help them to make their contribution to its welfare and progress.

1. The origin and evolution of society—primitive society, the clan and the tribe. Patriarchial and Matriarchial societies. Kinship, adoption and marriage. Exogamy and endogamy. Caste and race.

2. Society and the Individual. The value of individual personality. The democratic basis of society. Importance of the individual in Hindu, Muslim and Christian literature. The individual as isolated unit, *versus* a socialised individual. The individual in the midst of social relationships, together with social rights and responsibilities as the unit of our thought and discussions. Social harmony and social disruption.

3. Social groups and social institutions. Uses and abuses of social groups. The family, caste and communal groups. Economic groups such as trade unions, Racial groups. The ideal of World Society. Science has made the world and neighbourhood; How can Sociology make it into a Brotherhood ? Explanation of the Culture lag theory.

4. The nature of Social change and the meaning of social progress. Social change in Hinduism and Islam. Social changes in daily life. Social change in the city and village. Factors of social change. Social logs, Culture contacts and fusion. Culture contacts and friction.

5. Enquiry into Indian social conditions and examination of their effects—such as malnutrition, marriage of the immature, ignorance disease and squalor. Ask each student to make a case study.

6. Social survey—Importance of case study. Studies of investigations into social conditions conducted in England and America. Social survey in India, regarding poverty and other economic conditions. Budget studies and the standard of life. Comparative study of the standards of their countries. Famine conditions in India.

7. Poverty—Causes—Population and poverty, over-population and under-population. Birth and death rates in India, Length of life, Comparison with other countries. Malnutrition and change in national diet. Removal of poverty; social, economic and political remedies.

8. Harmful social customs and their removal. Caste exclusiveness and untouchability. Modification of the rigors of caste by State and social action. Marriage of the immature and marriage practices. The purdah—Eugenic and hygienic practices. Legal disabilities of women in Hindu and Islamic society. The new Hindu Code. Polygamy and polyandry and attempts at their abolition. Limitations of the joint family system. The dowry and inheritance. Hindu-Muslim and Christian laws of inheritance.

Third Year

(2 hours per week.)

1. Indian village—main characteristics—main village problems diseases and epidemics—maternal and infant mortality—illiteracy—general ignorance and apathy—lack of leadership.

2. Principles of rural reconstruction—

Economics Aspect supplementing agricultural incomes by rural industries. Dairying—poultry breeding, bee keeping and sericulture. Other handicrafts, Agricultural demonstration and propaganda; cattle breeding centres; better seeds and manures; more grazing facilities, agricultural co-operation of all types.

Social aspect—Improvement of rural health and physique and hygiene—rural welfare centres. Better rural doctors, nurses and midwives.

Rural education and recreation—broadcasting and cinemas—village panchayats. Place of voluntary organisations in rural welfare work. Implementation of the five-year plans. Community Development programme and the National Extension schemes.

3. Indian Industrial worker—His main problems—Housing scarcity; illiteracy; lack of skill; diseases, unemployment. Existing welfare scheme—Statutory and voluntary—Social Insurance in India. The Employee State Insurance Act.

4. Indian Political Society. Evolution of our present day Government structure and functions of our national, State and Local Government. Contributions of the individual and the family to the State.

5. What is meant by the terms "Welfare State" and "The socialistic pattern of society". India and the world outside. India's contribution to World peace. Her leadership in South-East Asia.

6. Social attitudes and their development. Social deviants—their causes and remedial measures. Civic conscience—How to create it among the public—Regard for public property.

7. Education in India. Ancient and Modern—Education for the community. Functional education and education for leisure—Basic education and its implication.

8. Women in industry, Women's work and wages. Equal pay for equal work. Causes for the low rates of women's wages—Cottage Industries and women.

9. Women and civic responsibilities. Women as social workers and teachers. The ideal of Indian womanhood.

Text-Books for B.Sc. Degree in Home Science (Three-year course), 1959, 1960 & 1961.

PART I—ENGLISH—1959 & 1960.

Paper I—Poetry and Prose.

Poetry—The following poems from "Sixteen fifty—Nineteen fifty" Anthology by L. G. Salinger (Blackie).

Milton—Lycidas.

Johnson—The Scholar (from Vanity of Human Wishes).

Wordsworth—Tintern Abey.

Wordsworth—Resolution and Independence.

Shelley—Ode to the West Wind.

Keats—Ode to a Nightingale.

Keats—Ode on a Greecian Urn.

Keats—Ode to Autumn.

Arnold—The Scholar Gipsy.

D. H. Lawrence—The Snake.

W. Owen—Strange Meeting.

Prose—Detailed—

1. Gulliver's Travels—the First two Voyages only—The Scholars' Library (Macmillon)
2. D. C. Sharma—Reperesentative, English Essays (Blackie).

N.B.—The question paper will consist of five questions, two questions on Poetry, two questions on Prose, the fifth question being an annotation question on the prescribed text in Prose and Poetry.

Paper II—Composition.

Prose—(Non-detailed reading)—

1. Hardy—The Woodlanders.
2. Shaw, B.—Arms and the Man.
3. Hudson, H. N.—Far Away and Long Ago.

PART I—ENGLISH—1961.

Poetry:

The same as for 1960 examinations.

Prose:

1. Prose with a purpose—Swaminathan and Ramaswami (O.U.P.)

2. Pride and Prejudice—Jane Austin.

Non-Detailed Study:

1. Vanity Fair—Thackersay.

2. Strife—Galsworthy—Duckworth.

3. The Kon-Tiki Expedition by Thor Heyerdahl—edited by G. C. Thornby—Longmans.

PART II—Sanskrit.

1959, 1960 & 1961.

1. Kalidasa's Sakuntala.

2. Vagbhata's Ashtangahrdaya—Sutrasthana, Chapters 2 and 4.

Paper I shall be on these two text-books; and

Paper II—Translation from Sanskrit into English and from English into Sanskrit.

Both the papers to be taken at the end of the second year course.

Third year course—Sundarapandiya's Nitidvisastika is recommended for study, but there will be no examination in it.

PART II—HINDI.

1959 & 1960.

Paper I.

Poetry and Prose—

1. University Poetry Selections for B.A.—Modern Period only.

2. Hindi Gadya Sanchaya—Mahavir Prasad (Published by Ram Narayan Lal & Sons, Allahabad).

Paper II.

Composition—

1. Nirmala by Prem Chand.

2. Katha Kaumudi—Dakshina Bharat Hindi Prachar Sabha, Madras.

For reference only—

1. Arogya Sadhan—Mahatma Gandhi (Sasta Sahitya Mandal).

PART II—HINDI.

1961.

Hindi Gadya Garmia (excluding lessons 7, 11, 14, 16 and 18)—Edited by Randhir (Upadhyaya, Macmillan & Co., Ltd.)

PART II—FRENCH.

1959.

En marge des temps modernes—Edited by A. E. Forster (O.U.P.)

Mon oncle et mon cure by J. de la Brete.

Harrap—Racine's Esther.

PART II—FRENCH.

1960 & 1961.

Contes et recito. by J. Mansion. Harrap. Mon oncle et mon cure by J. de la Brete. Harrap—En marge des temps modernes by A.E. Forster, O.U.P. (There is no examination in the third year.)

PART II—URDU.

1959.

Paper I—Prose and Poetry Text-books.

Prose—

1. Mirat al Arus by Nazir Ahmad.
2. Chand Ham'aśar by Moulvi Abdul Haq.

Poetry—

3. Rang-O-Aahang, Vol. II.

Paper II—Composition—General and Textual.

Non-detailed—

4. Gulistan-e-Amjad by Hussain.

PART II—PERSIAN.

1959.

Paper I—Prose and Poetry Text-books.

Prose—

1. Baharistan by Jami.

Poetry—

2. Diwan Hafiz (First Twenty Ghazals).
3. Bustane Sa'd (First Chapter only).

Paper II—Translation from Persian into English and vice versa.

(No book is prescribed).

PART II—ARABIC.

1959.

Paper I—Prose and Poetry.

1. Majaniul Adab, Vol. II (First sixty pages only).
2. Azhar al-Arab.

Paper II—Translation from Arabic into English and vice versa.

(No book is prescribed.)

PART II—GERMAN.

1959 and 1960.

1. Grammar—Wrenn—Krips (Harrap.)
2. Allerlei Menschen by Curts and Reinsch, William Heinemanna Ltd.
3. Wilhelm—Tell by Schiller.

PART II—TAMIL.

1959, 1960 & 1961.

Paper I.

Poetry and Prose—

Poetry—

1. Tirukkural: Payiram (4 chapters), Maruntu (1 chapter), Ilvazhkai (I chapter).

Vazhkairrunai (I chapter), Pudalvaraipperudal (I chapter).

Virunthombal (I chapter), Anbudaimai (I chapter), Ozhukkamudaimai (I chapter), Iniyavai kural (I chapter), Cheynnanriyaridal (I chapter), Kalvi (I chapter), Kurrantalall (I chapter)—Total 300 lines.

2. Manimekalai—Malarvanam pukku katai—171 lines.

3. Kambaramayanam—Kaikesi Sulvinaippatalam—440 lines.

4. Minakshi Pillaittamizh—Varugaipparuvam and Oosal—80 lines.

Prose (Detailed)—

Valluvarum Magalirum by T. P. Meenakshisundaram (T.P.M. Commemoration Committee, Chintadripet, Madras).

NOTE.—The questions shall be divided into those on Poetry and Prose and marks shall be distributed in the proportion of 70 : 30.

Paper II.

Composition—Prescribed Texts for Composition—

1. Kulantai by Dr. M. Varadarajan (Pari Nilayam, Broadway Madras).

2. Pennmathimalai by Vedanayakam Pillai (Catholic Diocesan, Tuticorin).

NOTE.—There shall be a question paper each on the two Texts prescribed and a third on a general subject and the marks shall be distributed in the proportion of 30: 30: 40.

Books recommended for Study in the Third Year—

1. Nalavimapaka Sastiram (Ratna Nayagar & Co., Madras).

2. Padarthaguna chintamani (Indigenous School of Medicine).

NOTE.—No question shall be set on these texts.

PART II—TELUGU.

1959 & 1960.

Poetry—

Tikkana Bharatam, Udhyoga Parvam, Cantos 3 and 4.

Prose—

Duvvuri Rami Reddi: Sarasvata Ramya Harmyam—N. M. Venugopala Naidu's Sri Saraswati Granthamala, 84, Giddangi Street, Madras-1.

PART II—TELUGU.

1961.

Poetry—

Krishnarayabaramu—Cantos 3 and 4—Udhyoga parvam (Tikkana, B.A., University Selections—No. 3).

Prose—

Saraswata Vyasamulu by Duvvuri Rami Reddi.

Non-detailed—

Translation by Srinivasa Chakravarti, Adarsa Grandha Mandali, Vijayawada.

PART II—KANNADA.

1959, 1960 & 1961.

Paper I

Poetry and Prose—

1. Jaimini Bharatam—Sandhis 1, 2 and 3 (omitting Stanzas 7, 9, 10, 29 in Sandhi 3.)
2. Megha Sandesha by Kukke Subrahmanya Shastry.
3. Samskriti by D. V. Gundappa.
4. Prachina Sahitya by T. S. Venkannaya.

Paper II.

Composition—

1. Avyakta Manava by K. S. Haridasa Bhat.
2. Odahuttidavaru by K. S. Karantha.

PART II—MALAYALAM.

1959.

Paper I.

Detailed Study—

1. Vallathol	Abhijana Sakunthalam—Published by Vallathol Granthalayam.
2. Asan	Chinthavishtayaya Seetha—Published by Sarada Book Depot, Alwaye.

3. Balamani Amma ..	Lokantharangalil—Published by Mathrubhumi Printing and Publishing Co., Ltd., Kozhikode.
4. C. H. Kunhappa ..	Vicharakorakam—Published by Cannanore Printing Works, Cannanore.
5. Kuttikrishna Marar ..	Sahitya Vidya—Published by P. K. Bros., Kozhikode.

Paper II.

Non-detailed Study—

1. P. K. Parameswaran Nayar.	Mahatma Gandhi—Published by National Book Stall, Kottayam.
2. Attur Krishna Pisharoti.	Kerala Kathakali Part II—Published by Bhattarak Brothers, Sri Thilakam, Trichur.

PART II—MALAYALAM.

1960.

1. Kaladi Raman Nambiar	Kalidasa's Sakuntalam (Pub. by Kaladi Bros., Chalakkudi).
2. Kumaran Asan ..	Chinthavisthayaya Seetha (Published by Sarada Book Depot, Alwaye).
3. P. Kunhiraman Nayar.	Kaliyachan (Pub: Sri Guruvayurappan Book Depot, Guruvayur).
4. N. V. Krishna Variar	Kalotsavam (Pub: Kerala book Depot, Kozhikode).
5. M. P. Paul	Sahityavicharam (Pub: National Book Stall, Kottayam).
6. Kappana Krishna Menon.	Cheraman Perumal (Pub: Mathrubhumi Publications, Kozhikode).
7. P. K. Parameswaran Nayar.	Mahatma Gandhi (Pub: National Book Stall, Kottayam).

PART II—MALAYALAM.

Paper I.

1961.

Same as for B.A. Part II, Papers 1 and 2 (omitting items 1, 2 & 3 under Paper 1 viz.):

1.	Cheruriyil Kunjunni Nambisan.	Vikramovrasiyam: Published by Sahitya Parishat Book Stall, Ernakulam.
2.	Vallathol Narayana Menon.	Sahityamanjari Part III—Published by Vallathol Granthalaya, Cheruthuruthi, Kerala.
3.	Vailoppillil Sridhara Menon.	Kannikkoythu (Following titles only): 1. Mampazham, 2. Vasantham, 3. Assan Panikkar, 4. Kaakka, 5. Sahyante Makan, 6. Paschima Samudram—Pub: National Book Stall, Kottayam.
4.	N. V. Krishna Variar ..	Kalotsavam—Publishers: Kerala Book Depot, Kozhikode.
5.	M. P. Paul	Sahitya Vicharam (Publishers: National Book Stall, Kottayam.)

Paper II.

1961.

1.	V. C. Raman Pillai ..	Martanda Varma—Published by B.V. Book Depot, Trivandrum.
2.	P. K. Narayana Pillay.	Smarana Mandalam — Publishers: P. K. Memorial Press, Trivandrum.

CHAPTER XLV

DEGREE OF BACHELOR OF COMMERCE (B.COM.)

Regulations.

1. Candidates for the Degree of Bachelor of Commerce shall be required.

   (*a*) to have passed the Pre-University examination of this University or an examination accepted by the Syndicate as equivalent thereto, and

   (*b*) to have subsequently undergone the prescribed course of study in a constituent or affiliated college of this University for a period of not less than three academic years or nine terms.

Course of Study

2. The course of study shall comprise instruction in the following subjects according to syllabuses and text-books to be prescribed from time to time:—

PART I

English

The course shall extend over a period of two academic years. The course shall cover:—

1. the study in detail of certain prescribed books in Modern Prose;
2. composition on matter supplied by books set for perusal;
3. precise writing and business correspondence.

PART II

A Second Language

The course shall extend over a period of two academic years and shall comprise the study of any-

one of the following languages at the option of the candidate:—

1. Foreign—
   - French.
   - German.

   Foreign—
   - Sinhalese.
   - Burmese.

2. Indian—
   - Tamil.
   - Telugu.

   Indian—
   - Kannada.
   - Malayalam.
   - Marathi.
   - Oriya.
   - Hindi.
   - Bengali.
   - Urdu.
   - Gujarati.

(*Note* :—The language taken shall not to be the same as that taken for the Pre-University examination.)

The course shall cover Translation from the selected language and *vice versa* and Composition which shall be in the nature of short letters dealing with Commercial correspondence.

(*Note*:—There will be only one paper and no text-books will be prescribed.)

PART III

The course shall extend over a period of three academic years and shall comprise the study of the following:—

Group A

1. General Economics.
2. Modern Economic Developments and Economic Problems of India.

Group B

1. Banking Law and Practice.
2. Business Organisation and Secretarial Practice.
3. Mercantile Law.
4. Advanced Accountancy.
5. Statistical Methods and their application to commerce.

Group C

Any one of the following:—

1. Trade and Transport.
2. Insurance.
3. Rural Economics and Co-operation.
4. Industrial Organisation and Cost Accounts.
5. Income-tax Law and Practice.
6. Actuarial Science.
7. Advanced Currency and Banking.
8. Special Accounts and Audit.

Examination.

3. The examination shall be in three Parts—Part I, Part II and Part III. Candidates may take Part I, Part II and Group A of Part III at the end of the second year of the course and Group B and C of Part III at the end of the third year.

Scheme of Examination.

4. The scheme of examination shall be as follows:—

PART I

		Hours	Marks
1.	English—Prose ...	3	100
2.	Composition ...	3	100
3.	Precis writing and Business correspondence.	3	100
	Total ...		300

PART II

A Second Language

		Hours	Marks
	Translation, Composition and Correspondence.	3	100

PART III

Group A

		Hours	Marks
1.	General Economics ...	3	100
2.	Modern Economic Developments and Economic Problems of India.	3	100
	Group B		
1.	Banking Law and Practice.	3	100
2.	Business Organisation and Secretarial Practice.	3	100
3.	Mercantile Law ...	3	100
4.	Advanced Accountancy.	3	100
5.	Auditing ...	3	100
6.	Statisticai Methods and their application to Commerce.	3	100
	Group C		
1.	Paper I in the selected subject.	3	100
2.	Paper II in the selected subject.	3	100
	Total ..		1,100

Marks required for a Pass in the several Parts to qualify for the Degree.

5. A candidate shall be declared to have passed Part I or Part II of the examination if he obtains not less than 35 per cent of the total marks in each Part. A candidate shall be declared to have passed Part III if he obtains not less than 35 per cent of the marks in each group separately and 40 per cent in the aggregate in Groups B and C together.

Conditions of eligibility for the Degree.

6. No candidate shall be eligible for the Degree of Bachelor of Commerce until he has completed the course of study prescribed and passed the examination in all the Parts specified.

There shall be separate lists of successful candidates in each Part. Candidates obtaining not less than 60 per cent of the total marks in Part I or Part II shall be declared to have passed that Part with distinction.

Successful candidates who pass the examinations at the first appearance and obtain 60 per cent or above of the total marks in Part III (Groups B and C only) shall be placed in the first class in that Part. Successful candidates who obtain less than 60 per cent but not less than 50 per cent of the marks in Part III (Groups B and C only) shall be placed in the second class. All other successful candidates in Part III (Groups B and C only) shall be placed in the third class. A candidate securing not less than 75 per cent of the marks in any group under Part III of the examination shall be declared to have passed that group with distinction. There will be no classification for Group A of Part III.

Symbolic representation shall be adopted in declaring the results and a statement of detailed marks shall not be furnished.

Symbol A *plus* will denote 65 per cent and above of the marks but below 75 per cent of the marks.

Symbol A will denote 60 per cent and above of the marks but below 65 per cent.

Symbol B *plus* will denote 55 per cent and above of the marks but below 60 per cent.

Symbol B will denote 50 per cent and above of the marks but below 55 per cent.

Symbol C *plus* will denote 45 per cent and above of the marks but below 50 per cent.

Symbol C will denote the passing minimum above but below 45 per cent.

Symbol D will denote Distinction as having obtained 75 per cent and above of the marks in any one of the subjects or groups provided the candidate passes the whole examination at the first appearance.

Symbol F will denote failure.

8. Candidates who fail in any Part or Parts of the examination shall be permitted to appear in such Part or Parts at any subsequent examination on payment of the prescribed fees without producing any additional certificate of attendance and progress.

Successful candidates under the above Regulation shall be placed in a separate list. They shall not be eligible for prizes or medals awarded by the University.

9. Candidates who pass the Intermediate examination taking 'Elements of Commerce and Accountancy', shall be admitted to the second year of the three-year degree course.

This Transitory Regulation shall be in force for a period of five years after the introduction of the three-year degree course.

10. Candidates who have undergone the course of study and appeared for the examination or been exempted to appear for the examination under the Regulations in force prior to the academic year 1958, shall be permitted to complete the examinations under those Regulation. This Transitory Regulation shall be in force till the Examination of March-April 1964.

B.Com.

SYLLABUSES

PART I

PRECIS WRITING AND BUSINESS CORRESPONDENCE

A. PRECIS WRITING.—

Precis of commercial matter—Precis of Commercial and Official Correspondence—Precis in the Forms of Narration or Story of Document relating to a particular subject—Precis of Public speeches and commercial essays.

B. BUSINESS CORRESPONDENCE.—

(*a*) Introduction—Organisation of Correspondence department—business letters—Orders and Execution—Complaints and settlements of accounts circulars and official letters—Correspondence on imports and exports, bills of exchange, agency, carriage by land and sea—banking and insurance.

(*b*) Drafting the report—Reports by individual—Reports of Committees—Drafting of reports for the press—Writing reports from statistical data—Drafting replies to questionaires—Drafting short speeches—Writing of essays—Descriptive Economic and commercial essays relating to Agriculture, Industries, Population and Labour Finance and Currency, Planning, Transport, Broadcasting and Miscellaneous.

Books Recommended.—

Pink and Thomas: English Grammar, Composition and Commercial Correspondence.

Lydall : Precis Writing.

G. M. Moitrs : English Composition.

Carrad : Commercial Correspondence.

Pocock : Precis Writing.

Bahl and Nagannaiah : Modern Business Correspondence.

A. N. & S. N. Agarwalla : Economic Commercial Essays.

Rowland and Fry : Manual of Commercial Correspondence.

J. Stephenson : Principles and Practice of Commercial Correspondence.

Palser : Precis Writing.

Gideons : New Business Correspondence (1951).

PART III

Group A

I. GENERAL ECONOMICS

The nature and scope of Economics.—Survey of the evolution of the modern economic system—Features of current economic organisations—Forms of Business organisations—Division of labour—Location of industry—The factors of production—Their supply in the short run and long run—The law of variable proportions—The law of returns to scale—The nature of functions of the market—Specialised markets—Analysis of consumer's demand—the indifference curves and equilibrium of the consumer—Analysis of supply—real cost, money cost and opportunity costs—The deviation of cost curves—the Theory of pricing under competition and monopoly in the short run and the long run—pricing under monopolistic competition—Discriminating monopoly—control of monopoly—pricing of joint products—National income and its components—Measurement of National income—personal distribution—functional distribution among the factors of production—Theories and problems relating to wages, interest, rent and profit.

Theory of money and banking.—Functions of money, kinds of money, value of money—Theories—Nature of credit—credit instruments—The money market and its institutions and functions—The banking system branch versus unit banking—Commercial versus Mixed banking—Theory and practice of central banking—The Bank of England—The Reserve Bank of India—The Indian Money market—The Federal Reserve System—The Stock Exchange—The Indian currency system—Monetary Standards in their domestic and nternational aspects.

International Trade.—The basis of trade and the doctrine of comparative cost—Reciprocal demand and the terms of trade—effect of trades on prices and income of factors—Arguments for protected verses Free trade—The meaning and structure of balance of payments—Disequlibrium in a balancc of payments—Methods of International payment—The foreign exchange market—Balance of payments adjustment under gold standard and fee exchange rates—Exchange control—Major quotas and subsidies—The International Monetary Fund—Theories of trade cycle—Causes and cure of unemployment.

Public Finance.—Public versus Private finance—The principle of maximum social advantage—Effect of public expenditure on production, distribution and employment—Theories of taxation—taxable

capacity—Incidence and effects of taxation of land, income property, sales etc.—Public debt and its repayment—Budgeting for full employment.

BOOKS FOR REFERENCE.

Cairncross : Introduction to Economics.

Meyers : Elements of Economics.

Benham : Economics.

Dalton : Public Finance.

II. MODERN ECONOMIC DEVELOPMENT AND ECONOMIC PROBLEMS OF INDIA.

(a) Modern Economic Development.

England.—English economy before the Industrial Revolution—Pioneers in Agricultural improvement—The Enclosure Movement and technical changes leading to a revolution in agriculture—The causes and features and effects of the Industrial revolution—Changes that revolutionised particular major industries—The change from mercantilism to Free trade—The vicissitude of agriculture and industries in the 19th century—period of French war—Postwar period—The Golden era—The Great depression—Challenge to Britain's industrial supremacy—Adjustment of British industry and agriculture to changed times—Reaction from free trade—The labour movement and labour legislation—The social insurance schemes beginning with Poor laws—The role of modern Transport in the days of the industrial revolution—Effect of revolution in transport—The Commercial revolution—Recent trends towards nationalisation—British Economy since II World War.

U.S.A.—U.S.A. economy before Independence—The resources of the U.S.A. agricultural and industrial progress before the civil war—the role of transport and tariff—The civil war and its economic effects—agricultural progress and rapid industrialisation after the civil war—the evolution of the Federal Reserve system—Industrial combinations and Anti-Trust Laws—Tariff policy and economic progress—Features of American Labour movement and labour laws—U.S.A. in the world economy today.

U.S.S.R.—Russian economy before the Revolution—Era of war communism—The new economic policy—The Five-year Plans and progress—Foreign trade policy—Soviet labour and transport—features of Soviet economy—U.S.S.R. in the world economy today.

India.—India at the beginning of the 18th century—The foreign trading companies—economic transition in India—causes and effects—The changing fortunes of the peasant to this day—Part played by the State in the sphere of agriculture—policy developments in respect of famines, irrigation and railways—Industrial and Tariff policy of the State—Growth of major industries with analysis of factors that helped or hindered—Review of foreign trade—The Managing Agency system—The growth of joint stock enterprise—the story of the rupee and the banking system—growth of population and food supply—Independence and progress under the Five-year plans.

Japan.—Japanese economy at the time of Meiji Restoration—Population growth and food supply—Industrial policy of the State—Leading industries—Growth of Japan's foreign trade—Japan's shipping industry—Cottage industries.

BOOKS FOR REFERENCE

L.C.A. Knowles : Industrial and Commercial Revolutions in 19th Century.

Soutghate : English Economic History.

Sarkar : Modern Economic Developments of Great Powers.

Sheth : Modern Economic Developments, 1914—1950.

Allan : A Short Economic History of Japan.

Vera Anstey : Economic Developments of India.

Gadgil : Industrial Evolution of India.

Jather & Beri : Vols. I & II, Indian Economics.

(b) Economic Problems of India.

1. Survey of India's physical environment and natural resources.

2. The economic transition in India.

3. Population—Growth and distribution.

4. National Income of India—its size and variations.

5. Agriculture, main features—land tenures—history and current trends—size of holdings, subdivision and fragmentation—Land reform—Types of farming, subsistence, mixed co-operative and collective—Agricultural methods and technique—Irrigation—Animal Husbandry—Problems of marketing—Financing of agriculture—Co-operation, growth and structure of the movement, current trends—Agricultural Planning.

6. Problems of Indian Industry—Industry evolution in India—Location of industries—Organisation of large scale industries—

cotton textiles, iron and steel, jute, cement etc.—Small scale industries —Cottage industries—Financing of Industries, the Managing Agency system—External finance—Industrial Policy—Planning for industrial development.

7. Labour problems—Trade unions, industrial disputes—History of Labour legislation in India—Minimum wages—Labour welfare—Social security.

8. Transport—History of railway development—Road—rail co-ordination—Other forms of transport.

9. Trade and Tariffs—Main Trends in India's foreign trade—Commercial policy—Discriminating protection—Tariff policy in recent years—Import and export controls—features of Internal trade.

10. Currency and Banking—History of Indian currency Monetary Standards in India—India's foreign exchange—India and the International Monetary Fund.

Indigenous Banking—Development of joint stock banking—The Reserve Bank of India—The Indian Money market.

11. Public Finance—Main heads of revenue and expenditure of the Union and State Governments—Historical evolution—The Indian Public Debt.

12. State and Economic Policy—Nationalisation—Mixed Economy —Community Projects—The Five-Year Plans.

BOOKS RECOMMENDED

P. Banerji : A Study of Indian Economics (Rev. Ed. 1954).
Jather & Beri : Indian Economics, Volumes I & II.
Nanavati and Anjaria : The Indian Rural Problems.
Malhotra, D. K. : History and Problems of Indian Currency.
R. Balakrishna : Studies in Indian Economic Problems.

Group B.

I. BANKING LAW AND PRACTICE

Introduction.—Evolution of Banking Institutions—Different Types of Banks—Essential functions of commercial Banks—Miscellaneous functions—Central Banking.

Banker and Customer.—Definition of Banker—Banking, an Evolutionary concept—What constitutes a customer—General Relations—Special features of the relationship.

Banking Organisation.—Banking in England—Reasons for the dwindling importance of Private Banks—Indigenous Bankers--Banking companies corporations—Matters pertaining to the starting of new banks—Directorate—Director's Civil Liability—General Manager—Qualifications—Essential Qualities—Defects to be avoided—Scope of authority—Liabilities—Bank Building—Staff Stationery and Appliances—Training facilities for Co-operative and Commercial Bank Employees—Mechanisation of Bank accounts—Advantages and disadvantages—Bank Publicity—Window display—Bank accounting.

Bankers as Borrowers.—Bank Deposits—Fixed Deposits—Savings Deposits—Current deposits—Opening of a new account—Special types of customers.

Cheques.—Popularising cheque currency—Requisites of a cheque—Dating of cheques—Crossing and different forms of crossing.

Payment of Customers cheques.—Precautions—Endorsements—Regular and Irregular—Payment in due course—When payment must be refused—Legal significance of notice—Auction in case of dishonoured cheques—Banker as payer of domiciled bills.

Collecting Banks and Customers Accounts —Basis of Negligence—Conversion—Collecting Banker and his customer—Collection of customers' Bills—Precautions—Pass Book—Closing an Account—Right to the creadit balance in case of customer's death—Recovery of money paid by mistake.

Employment of Funds.—Important factors governing Reserve—Profitable use of funds—Investments—Rating of Securities—Underlying principles—Classification of Securities—Loans and Advances—General Principles—Advances by Indian Banks—Cash Credits—Overdrafts and Loans—Different forms of loans without Collateral Securities—Reasons for the restricted use of Bills in India—Bill Market Scheme—Advantages of Discounting Bills by Banks—Classes of Bills—Precautions in Discounting Bills.

Guarantees.—Who can enter into contracts of guarantee—Consideration—Scope of guarantee—Application to the whole or part of the Debt—Obligations of the Banker—Rights of the Banker against the surety—Precautions—Rights of the surety—Termination of guarantee.

Advances Secured by Collateral Securities.—Modes of securing advances—Margins—Liquidity of Securities—Need for written Agreement—Realisation of Securities—Law of Limitations and Advances—Advances against Stock Exchange Securities--Advances to Stock Brokers—Forms of Negotiability—Non-negotiable Securities

—Equitable Title and its drawbacks—Different methods of effecting Equitable Mortgages—Precautions—Shares of Private Companies.

Advances against goods and documents of goods.—Advantages—Drawbacks—Why unpopular in India—General Precautions—Advances against document of Title to Goods—General Precautions.

Miscellaneous Securities.—Lands and Buildings—Their unpopularity—mortgages—Rights of equitable mortgagee and subsequent legal mortgagee—life policies—their unpopularity—Precautions—Release of securities—Ships—Book Debts and Debentures as Banker's Security.

Subsidiary Services: Agency Service.—Banker's liability limited—Non-liability in case of ambiguous instructions—Miscellaneous or general utility services.

Foreign Exchange—What is Foreign Exchange? its importance in modern economic development—Mint Par of Exchange—Gold Points—Fluctuations in Exchanges—Causes and effects thereof—Exchange Equlisation accounts—Rates of Exchange—Long, Short and Sight Rates—Silver and Paper Exchange—The purchasing power Parity Theory—Forward Exchanges—Problems of stabilisation of exchanges—Terminology of Exchange and how to read a foreign exchange article.

Indian Exchanges.—Pre-war and Post-war conditions—present conditions.

Indian Banking—Organisation of Banking in India—Indigenous Bankers—Shroffs—Mahajans etc.—and their place in the Money market, Joint stock Banks—The Exchange Banks and their place in the money market—The State Bank of India—Its present constitution and functions—its importance in the Indian Banking field—its relations with Reserve Bank of India and other joint stock banks—the Reserve Bank of India and its functions—control of money market—Recent trends in Indian Banking.

Comparison.—Between the system of banking in India and in other leading countries in the World.

REFERENCE BOOKS

M. L. Tannon: Law and Practice of Banking in India.

Sheldon: Theory and Practice of Banking.

Panikkar: Banking in India.

E. Thomas: Banker and customer.

II. BUSINESS ORGANISATION AND SECRETARIAL PRACTICE

Business Organisation

1. Nature and scope of Business Organisation.
2. Evolution of Commerce and Industry.
3. The Scale of Operation and size of business units.
4. Plant Location.
5. Nature, Constitution and financing of these different types of business units.
6. Company Management—Directors, Managing Agents, Managing Director, Manager Secretary, Legal Adviser and Auditors.
7. Managing Agency System.
8. Administrative Organisation.
9. Business Organisations and Co-operative Undertakings.
10. Scientific Management.
11. Rationalisation.
12. Labour Movement and Welfare.
13. Methods of Wage Payments.
14. Distribution of Goods.
15. Marketing of Goods and Services.
16. The Middlemen.
17. Salesmanship and Advertising.
18. Shipping and Finance.
19. State, Industry and Trade.
20. Public Utilities.

Books Recommended :—

1. Datta and Narayanaswamy : Business Organisation.
2. Haney: Business Organisation.
3. Shukal: Business Organisation and Management.
4. Davar: Business Organisation.
5. Taylor: Principles of Scientific Management.
6. Taylor: Shop Management.
7. Kimball : Industrial Organisation.
8. Hudson : Business Organisation.

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III. MERCANTILE LAW

First Year

1. Introduction :—

Nature of Law in General—Definition—Object—Statute and Non-Statute Law—Common Law—Equity—Precedent—Civil and Criminal Law—Origin of Mercantile Law—Lex Marcatoria—Growth —Present Scope.

Definition of Terms :—

Legal Rights, Legal Obligation—Duty—liability—Disability—Capacity—Authority.

2. Law of Contracts :—

Enunciation of Fundamental Principles with illustration and no-over emphasis on case law. Inter-relation of Agreements—Obligation and Contract.

A; **Formation of Contract** :—Agreement not enforceable and agreements enforceable at Law. (Contracts)—Definition.

Essentials :—Consensus ad idem (Proposal or offer and acceptance).

Free Consent (Absence of Mistake, Misrepresentation, Fraud, Coercion, Undue Influence, Considertion) Comparative Study with English Law. Legality and Possibility. Capacity to contract—Effect of incapacity. Not void under the Indian Contract Act. Classification of Contracts : Express and tacit Unilateral and bilateral. Executed and Executory.

Voidable, Unenforceable and void.

B. **Operation.**—Rights and Obligations, Assignment Devolution.

C. **Termination or Discharge.**—Performance, Attempted Performance, Operation of Law, Consent Waiver, Impossibility.

D. **Consequence of Breach.**—Liability—Legal Remedies—Equitable.

3. Implied or Quasi Contracts :—

Provisions of the Act relating to Obligations resembling those created by contract.

4. Special Contracts :—

In the ICA Indemnity and Guarantee Definition Rights and Liabilities—Discharge of Surety. Bailments—Definition—Classes—Rights and Duties and Liability.

Second Year

1. Agency :—

Nature and underlying principles—classes—creation of agency—appointment—Rights and duties and Liabilities of Principal, agent and third parties—termination.

2. Law of Sale of Goods :—

Definitions—Parties—Price—Formalities—conditions and Warranties—Transfer of Property in and title to goods—Rights and duties of buyer and seller—Unpaid sellers rights.

3. Law of Partnership :—

Definition—Creation—Registration—Effect of non-registration—Essentials—Tests—Kinds of Partnership—and partners—relation of partners *Inter-se* and to third parties—Nature of Liability—Dissolution—Settlment of accounts.

4. Negotiable Instruments :—

Meaning and general characteristics—Kinds and forms—stamps—Inland and foreign Bills in a set—Accommodation—Parties—Negotiation—Endorsement—Forgery—maturity — Discharge — Dishonour—for honour—Liabilities of Parties—Presumptions—crossing of cheques.

5. Securities :—

Meaning—Importance—Personnel—On Property—Bond—Lien—Pawns—Bills of Sale, Mortgage of movables—Mortgages—Charge.

6. Carriers and Shipping :—

Definition of Common Carriage—Classes of Carriers—Duties and Liability and Common Law. Limitation of the Liability—Position in Indian Law—Carriage by land, In-land navigation, Railways, Sea (Charter-Party Bill of lading) Air, Rights of Carriers, Consignors and consignees of goods, Legal Position of Master of a Ship.

Third Year

1. Insurance Law :—

General Principles—Classes—Marine—Fire—Life—Motor Vehicles. (Third Party).

2. Law of Insolvency :—

Object—Courts and Jurisdiction—Person who can be adjudged insolvent—Proceedings in outline—Act of Insolvency—The Petition —Receiving Order—English law—Interim Receiver—Order of Adjudication—Effects—Examination, Private Public, Protection Order —Composition and Scheme of Arrangement—Annulment of Adjudication—Disqualifications of Insolvent—Antecedent transactions—protected transactions—secured of Provable debts and proof—Mutual Dealings and set off—Property of Insolvent—Realisation of Distribution—O. R. and O. A. Appointment, duties and powers—Special Manager—Insolvent as Manager—Priority debts—Dividentds —Small Insolvencies Summary Administration—Offences—Criminal Liability—Powers of Court—Appeals—Review. (Details of Procedure not to be stressed).

3. Company Law:—

Definitions—Corporate personality—Kinds of companies—Preliminary contracts—Promotion—M/A & A/A, their attention—Registration and its effects.

Prospectus : Certificate of Commencement of business—Membership—Capital, Shares and related matters; Rights and Liabilities of members—Executive of a Company, Directors, Managing Agents, Secretary, etc., Company's Contracts and borrowing powers—Debentures Control of the Company's affairs, Meetings and resolutions—Books Accounts and Audit—Auditors—Investigation and Inspection —Reconstruction and Amalgamation—winding up (Liquidation) Compulsory, voluntary, Under supervision—Consequences—Dissolution.

IV. ADVANCED ACCOUNTANCY

Fundamentals of Double Entry—Journalising the different types of Business Transactions—Journal, Purchases Book, Sales Book, Sales Returns Book.

Bills Receivable Book—Bills Payable Book—Three types of Cash Book, Petty Cash Book.

Personal and Impersonal Ledgers—Posting of the Subsidiary Books to the Ledger—Real and Nominal Accounts—Preparation of Trial Balances.

Opening Entries—Adjusting Entries—Closing Entries—Preparation of Trading Account, Profit and Loss Account and Balance Sheet.

Classes of Errors—Rectification prior to and subsequent to transfer of the difference in books to suspense Account—Bank Reconciliation Statements.

Mannfacturing Account: To ascertain cost of production as well as to ascertain Manufacturing Profit—Distinction between Manufacturing Account and Trading Account—Function of Profit and Loss Account and Balance Sheet.

Bills of Exchange, Promissory Note and Cheques—Bill of Transactions, Accommodation Bills—Foreign Bills—Documentry Bills—Dishonoured Bills—Retired Bills—Short Bills and Rebated Bills.

Depreciation and Reserves—Various Methods of Depreciation and Specific and General Reserves.

Self-Balancing Ledgers and Sectional Balancing—Total Accounts.

Single Entry—Conversion of Single Entry Books into Double entry.

Capital and Revenue—Revenue Account Receipts and Payments Account—Income and Expenditure Account.

Consignments—Cost Price Method, Invoice Price Method.

Joint Ventures—Accounts current—Average Due Date.

Partnership Accounts: Adjustment of Interest; Salary and Profits when the Capitals are either fixed or Merged. Guarantee of Profits to a Partner.

Admission, Amalgamation, Retirement, Continuance with a revised Profit—Sharing ratio—Dissolution by Death or Insolvency—Conversion or Private Firm into a Limited Company—Distribution of cash among partners.

Company Accounts: Share Capital and Debenture Issue—Issue of Shares and Debenture at a Premium and at a Discount—Forfeiture and Reissue of forfeited shares—Profit on Reissue of forfeited shares.

Form F.—Dividends, Bonus Shares, Profits prior to Incorporation.

Redemption of Debentures, Out of Profits and out of capital Debenture Redemption Fund—Redeemable Preferance shares—Capital Redemption Reserve Fund.

Reserves: Provisions General Reserve, Capital Reserve, Capitalisation of Reserve, Sinking Funds to replace an Asset or redeem a Liability.

Purchase of Business by a company—Amalgamation—Absorption —Debtors and Creditor's suspense Accounts—External and Internal Reconstruction.

Hire and Instalment Purchase and Royalties—Sale or Return.

Double Account System—Apportionment of Capital and Revenue Expenditure.

Departmental Accounts—Allocation of Expenses.

Branch Accounts—Wholesale Branches, Retail Branches—Debtors System, Memorandum Trading and Profit & Loss Account Stock and Debtors System—Loaded Price Method.

Where the Branch performs its own book-keeping, i.e., Independent Branches—Inter-Branch Transactions—Adjustments and Reconciliation of Branch and Head Office Accounts—Foreign Branches—Incorporation of Branch Trial Balances in the Head Office Books.

Fire Claims—Contract Accounts—Bank Accounts.

V. AUDITING

1. Audit, Its object and necessity in Modern Business Houses, Internal Check—Conduct of an audit—First and subsequent audits.

2. Vouching of each transactions—vouching of journal and other books of prime entry.

3. Checking of personal and impersonal ledgers.

4. Adequacy of Reserves—General and Specific.

5. Verification and Valuation of Assets and Liabilities.

6. Forms of Accounts—Criticism of Balance Sheet.

7. Statutory Audit—Share Audit—Share Transfer Audit.

8. Divisible Profits and Dividends.

9. Qualities of an Auditor—His duties, rights and liabilities under the Indian Companies Act.

10. Investigation.

11. Audit Reports.

Books Recommended :

Spicer and Pegler : Practical Auditing.

Diksee : Auditing.

Lancestor : Auditing.

Batliboi : Lecturers of Auditing.

De Paule : Principles of Auditing.

Cutforth : Audits.

VI. STATISTICAL METHODS.

Syllabuses.

General.—Nature and scope of statistics, its uses and relation to other science. Definition of Statistics, Law of Statiscal regularity, Inertia of Large numbers, Limitations of Statistics.

Methods of Statistical Enquiry.—Planning the Collection of Data, Determination of the Unit, Its Characteristics, Collection of Data by Schedules and personal investigation, Character of question, Approximation and Accuracy, Standard and Limits of possible accuracy, Biassed and unbiassed errors, their effects.

Arrangement of Data.—Tabulation, functions and varieties, rules for construction of table, selection of limits of groups in frequency Table, Continuous and Discrete Series.

Averages.—Arithmetic, Simple Weighted Progressive and Moving average; Geometric mean, Descriptive averages, Harmonic Mean Media and Quartils, Mode, Merits and Demerits of different types of averages.

Dispersional.—Meaning and method of measurement, Range Moments of dispersion, Co-efficient of dispersion, Mean and standard deviation, Quartile, Measure and Coefficient of Dispersion—Merits and demerits of different methods, Lorenz Curve.

Skewness.—Its meaning and measures and coefficient of skewness.

Index numbers.—Objects, methods of construction. Fixed and Chain base numbers, weighing. Principal published general index numbers. Cost of Living Index Numbers.

Diagramatic and Graphic representation of Diagram.—Data.—The importance and Types, Bar, Rectangular Square and three dimensional diagram, their relative merits and demerits.

Graphs.—Their uses, Rectangular, smooth histogram, Frequency Polygon, Ogive curve, Graphic method of locating median and mode, the trend, fluctuations: Random, Compensating, undulatory and Periodic method or elimination season effect.

Correlation.—Definition, Carl Pearsons Coefficient of Correlation, its modification for short-term oscillations, Coefficient of concurrent deviation, Use of the Lag, Probable error, correlation of groups, Regression equations.

Interpolation.—Its uses and technique, Graphic method, Algebraic treatment.

Administrative Statistics.—Statistical organizations in India, Types of Statistics collected by the State Government—Population, Trade Agricultural and Indnstrial Statistics.

Group C.

Optional Subjects.

I. TRADE AND TRANSPORT

A. TRADE.

(PAPER I.)

Theory of International Trade.—Need for a special theory of International trade—The doctrine of comparative cost—the reciprocal demand curves—the terms of trade and gains from trade—Effects of trade on price level and factoral income in the trading countries—monopolies and foreign trade.

Commercial policy : Free trade Versus Protection—Imperial preference—Customs Union.

The Balance of Payment.—Structure—definition of disequilibrium—means of international payment—the foreign exchange Market

Sources of disequilibrium.—adjustment under gold standard, free exchange—and flexible exchange—India's balance of payments in recent years—Network of world payments and multilateral adjustment—bilateralism—India and the International Monetary Institutions like the IMF and I.B.R.D. International commodity agreements—The Sterling area.

Practice of Foreign Trade.—Features of the sale of goods across the frontier—procedure at the ports—documents used in trade. Financing the importer and exporter—risks in foreign trade and coverage.

BOOKS FOR REFERENCE

Ellsworth : International Economy.

Snider : Introduction to International Economy.

Syrett : Practice and Finance of Foreign Trade.

Meade : Balance of Payments.

B. TRANSPORT

(PAPER II)

1. (*a*) Functions of transport—development of transport—Railway Transport : nature of cost in railway transport—theory and practice of rates and fares—classification of goods and minerals—Discrimination and undue preference—state regulation of rates and fares—rates tribunals—state ownership and/or management—road-rail co-ordination.

Division versus departmental organisation—Passenger and goods station working.

(*b*) Rolling stock distribution—Marshalling yards—wagon pooling.

(*c*) Development of Indian Railways—history and problems of Indian Railway Finance—grouping of railways—Administration of Indian Railways.

2. (*a*) Road Transport : Importance—Economics of Road Construction and maintenance—features of different forms of road transport—theory of rates and fares—public versus private ownership and/or control of road transport undertakings—road versus rail.

(*b*) Financing and administration of roads in India—rural and urban transport in India—Motor transport in India : history regulation—taxation etc.

Nationalisation of road transport in India—

3. Water Transport : Economics of Inland Transport—Organisation of Ocean Transport Services—elements of shipping—Competition and monopoly in shipping—History and problems of Indian Shipping—ports and harbours—their functions and charges—role of State in shipping—industry's development.

4. Air Transport : Organisation of air services—air transport costs—State Aid—Regulation and/or ownership by State Air Transport in India.

BOOKS RECOMMENDED

Acworth : Elements of Railway Economics—Clarendon Press.

Bonavia : Economics of Transport—CUP.

Milne : Economics of Inland Transport.

Srinivasan : Law and theory of Railway Freight Rates—B. G. PAUL.

Walker : Road and Rail—Allen and Unwin.

Transport in Modern India—Batnagar and others—Kishore Publishing House, KANPUR.

Fenelon : Economics of Road Transport.

Motor Vehicles Taxation Enquiry Committee.

Air Transport Enquiry Committee.

II. Insurance

Paper I

Insurance : General.—

1. Nature and meaning of insurance—various types of insurance contracts—History of insurance growth—present position in India—Economic and Social importance—Different insurers.

2. General procedure in issuing Policies—term of policy—settling claims—Policies and conditions—a general study—Agents Workers—Proposal—Cover—Note—Slip—Reports—Policies.

3. Insurance Contracts—General principles of contract—special legal principles applied to insurance contracts—insurable interest assignment—indemnity—subrogation—contribution—average—utmost good faith material facts, representation etc.—Proximate cause—Moral Hazard—Physical hazard.

4. General principles of premium fixing—tariff rates—retention and reinsurance.

5. Office organisation and routine—field organisation and salesmanship.

6. Insurance company accounts—special records—expense ratio annual rates—annual returns—taxation of insurance profits.

7. Insurance Act of 1938.

8. State of Insurance.

Paper II

Insurance—Life, Fire, Marine & Accident.—

A. **Life** : Purpose and scope of life policies—various types of policies and their special uses—annuity—group procedure to effect policies—application of the legal principles—Prospectus—proposal—reports—selection—extra risk—policy and conditions—alterations—

loans—surrender value—survival—automatic non-forfeiture assignment—nomination—title—settlement.

Premium elements—compound interest—mortality tables annuity rates—loading—valuation—distribution of profits.

Investment of life fund.

Common diseases—their causes—effect on longivity.

B. Fire, Marine, Personal Accident Motor, Employer's Liability, Guarantee, Aviation, Burglary, etc.

Application of general legal principles—kinds of policies and their uses—procedure in issuing policies proposals—cover note—slip—reports—policy terms and important conditions—settlement of Claims—Reserve for unexpired risk.

1. **Books Recommended** :

Dr. R.M. Ray: Life Insurance in India (Allied).

P.A.S. Mani : Life Insurance in India (Hindustan Advertisers, Bombay).

Gosh & Agarwal : Insurance Principles, Practice and Law (Indian Press, Allahabad).

Sarma : Insurance in India (Vora & Co.)

Indian Insurance Act, 1938.

2. **For Reference**:

National Planning Committee—Insurance.

Insurance Year Book.

Wilson & Sheriff: Insurance Office Organisation & Routine.

Taru : A Guide to Life Assurance.

T. D. Dutt : Law relating to Life Assurance in India (City Book Co., Calcutta.)

Sprague & Sprague : Insurance Company Accounting.

Goodwin : Fire Insurance.

Smith : Marine Insurance.

Banfield : Accident Insurance. (Pitman)

III. Rural Economics and Co-operation

RURAL ECONOMICS

Paper I

Contracts between agricultural industry and manufacturing industries—The factors of production : **Land**—supply in the short

run and long run—rent—value of land: **Labour**—sources, quality and quantity of agricultural labour. **Capital**—distinction from land—different forms of farming—capital and their sources—**Organisation**—division of labour, scale of production, land tenures, intensive versus extensive cultivation, specialised versus diversified farming capitalistic collective and co-operative farming—scientific management in agriculture.

Pricing in the agricultural industry.—Peculiarities of demand and supply—their influence on pricing—competition and monopoly in agricultural markets—Elements of cost—reasons for high cost of capital and marketing—risks in agriculture and their avoidance—futures trading.

Financing Agriculture.—Diverse demands for rural credit—classified and the sources of supply—factors governing the cost of short term and long term credit—requisites of a good system of rural credit—rural credit machinery abroad.

The role of the State.—Objectives of an agricultural policy—State action in regard to education and research size of holdings, land tenures, stable prices, rural landless labour etc.

Rural Problems of India with special reference to Madras—Population growth versus food supply—Occupational distribution of population—quality and adequacy of the factors of production—Reform of land tenures—the problem of economic holdings—Irrigation and transport vis a vis rural development—famine relief—soil conservation—technological improvement—livestock situation and improvement—rural industries—present marketing agencies and their improvement—provisions of rural finance—rural debt—rural credit survey—National extention service—Principal crops and the foreign trade in agricultural products—Agriculture and rural welfare in the Five-year plans.

Books for Reference :

B. V. Narayanaswamy and Narasimham—Rural Economics.

S. Y. Krishnaswami—Rural Problems in Madras.

Casselman—Co-operative Ideals and Principles.

Edgar Thomas—Introduction to Agricultural Economics.

Vijayaraghavachari Committee Report.

Rural Credit Survey.

K. R. Kulkarni—Theory and Practice of Co-operation Indian.

CO-OPERATION

Part II

Introduction :—Co-operation—Definition and Scope. What is Co-operation? Co-operation and its alternatives—The object of a Co-operative Society—Liability—interest Conditions necessary to make a credit society Co-operative—Contents necessary to make a credit—contents of the Act II of 1912. The nature of the Co-operative Principles—Co-operative Law and Liability—Co-operative Principles—Co-operative Philosophy of Life—Principles of Co-operative Credit—Theory of Consumers' Co-operation—Theory of Co-operative Marketing—Co-operative Credit in Germany—Co-operative Credit in Italy—Important Offshoots of German Village Banks.

The Problem of a Rural indebtedness in India :—Raiffeisen principles as applied to India—Co-operative Credit Societies—Departmental Control and Supervision—Co-operative farming in Palestine—U.S.A. and U.S.S.R. Co-operative and Collecting Farming in India.

Co-operative marketing in Canada and Japan.

Co-operative Marketing in India.

Consumers' Co-operation in England—The Development of Consumers' Co-operative Stores in India.

Agricultural Co-operative Societies in Denmark.

Labour Co-operative Societies in Foreign Countries—Building Societies.

The Development of Co-operatives in India—Health and Medical Co-operative in Rural India.

Multipurpose Societies—Origin—Development importance—principles and functions of such societies.

Co-operative Housing Societies in India and elsewhere.

Special features of the Co-operative movement in Madras.

Industrial Co-operatives :

(*a*) Weavers' Societies.

(*b*) Societies for other industries.

Some Non-credit Movements :

1. Land Colonisation Societies.
2. Consolidation of Holding Societies.
3. Better-Living Societies.

4. Special Societies proposed for ex-servicemen.

a. Settlement in Co-operative Workshops.

b. Land Colonisation.

c Labour Contract Societies.

d. Ex-Servicemen's Co-operative Motor Transport Societies in Madras.

5. Co-operative Insurance Societies.

6. Milk Supply Unions and Societies.

Co-operative Supervising Unions and Federations. State and Co-operation (1) Co-operative Education (2) Research in Co-operation (3) Audit (4) Supervision (5) Inspection (6) Legislation and Administration (7) Arbitration (8) Supersession (9) Liquidation and (10) Controlled Credit System.

An estimate of the Co-operative movement in India.

Co-operation and World Peace.

IV. Industrial Organisation & Cost Accounts.

Essentials for a proper system of works organisation—Capital requirements—siteplay out and equipment—Departmental Plan of organisation—functional plan of Organisation—Staff and line Plan of Organisation.

Importance of Discipline and Control over the work—Foreman —his attributes and remuneration and workers and working class and conditions.

Organisation to control Purchase, Production, Sales, Labour, Stores and accounts—Inter-locking system.

Budgetary control, Statistical reports, Standardisation, and Mass Production.

Elements of Cost—ascertainment of Prime Cost—Oncost allocation—cost records—different methods of cost findings Reconciliation of cost accounts with financial books—Problems connected with costing.

BOOKS RECOMMENDED.

Elbourne: Fundamental of Industrial Organisation.

Batliboi: Works Organisation, Management and costing Methods.

Lokanathan, P. S.: Industrial Welfare in India.

Panandikar: Industrial Labour in India.

Wheldon: Costing Simplified.

Clover and Williams: Elements of Costing.

Horton & Mason: Costs and Cost Accounts.

V. Income-Tax Law and Practice

Introduction.

Nature of income-tax—a tax on income—meaning and contents of the term—Corporation taxes—super tax—surcharge—excess profit duties or excess profits tax—business profits tax—capital gains—Agricultural income-tax—Finance Acts.

Brief History of Income-tax in India.

History of Income-tax in India and Native States before the Independence Act, 1947 (Division of India)—Reports of Taxation Enquiry Commission—Indian Income-tax Committee, 1921—Taxation Enquiry Commission—Indian Income-tax Investigation Commission Report—Indian States Finance Enquiry Committee—Taxation Enquiry Commission, 1953.

Agricultural Income:

Definition—Importance of—power to vary—distinction between agricultural and non-agricultural tax—burden of proof—liability under Agricultural Income-tax Act.

Classes of Assessees:

i. Individual: How the term is used in the Act—when it includes an artifical juridical person.

ii. Hindu undivided Family: A unit for taxation—assessment after partition.

iii. Company—Definition—Public Company—Private Company—Company under which Public are substantially interested—Dividends—definition—importance of super tax—when share-holders liable to super tax.

iv. Local Authorities—Meaning of—income when exempt or assessable.

v. Firms—definition—separate income-tax entity—registered—and unregistered firms—liability under the Act.

vi. Association of firms—Meaning of—charge of tax on members individually—co-owners.

Chargeability under the Act:

Charging under the section (Section 3)—extent of operation of Finance Acts—applicability of the law and procedure of the Assessment—year—each year self contained unit—Ambit of taxation—profits and gains—meaning of—Indian decisions—deemed to be received—actual and constructive receipts—assessments of not ordinary residents—assessment of non-residents.

Income—exempt from tax:

Charities—religious trusts—charities carrying on business—casual and non-recurring receipts—income of Provident Fund—new buildings—scientific research.

Income-tax Administration:

Machinery of taxation—Central Board of Revenue—Commissioner's of Income-tax—Assistant Commissioners of Income-tax—Income-tax Officers—The Appellate Tribunal.

TAXABLE INCOME.

Heads of Income:

Salaries—computation of—Interest on Securities—computation of—Income from Property—computation of—Business Profession or vocation—computation of—Other sources of—computation of—Capital Gains—computation of.

Method of Accounting:

General Principles—importance of account book—assessee free to choose a proper method of accounting—different systems of accounts—departure from regular method when permissible—profits when arising.

Total Income:

Definition—total income and total world income importance and object of distinction—computation of—exemptions and exclusions and ascertainment of partner's share of income—grossing of dividends—inclusion of incomes of others—calculation of tax—non-resident.

DEDUCTIONS AND ASSESSMENT.

Tax deductions—deduction at source—pay as earned scheme—certificate of deduction of tax at source.

Assessments:

Returns of income—general notice—special notice—revised returns—effect of default or invalid or incorrect returns accepted and when not accepted—production of accounts and other evidence—provisional assessment—when and how made—places of assessment—(section 64)—time limit for assessment—special provisions for settling losses and their carry forward and carry forward of depreciation losses—carry forward of losses in India but outside the taxable territories—set off and carry forward of losses by firms—carry forward of capital losses—emergency assessments—assessment of deceased persons' estate—assessment of discontinued firms and when constitution changes—assessment of firms when constitution changes—assessment in case of succession to business—registration of firms for assessment purposes—procedure of registration of improper distribution of profits procedure for levy of penalties—procedure for issue of notice of demand for tax penalty or interest—income escaping assessment—rectification of mistakes.

Appeals against Assessments:

First Appeal—procedure—second appeal—procedure—revision by Commissioners—(*a*) in favour of assessees; (*b*) in favour of the Revenue.

Powers to call for information.

Liability in Special cases:

Assessments on representatives of minors or lunatics or idiots or agents or non-residents—Receivers and Managers—to accrue or arising within the taxable territories—profits—liability when 'close connection' between resident and non-resident results in evasion—appointment of statutory agents—on occasional shipping—liability if assets are transferred abroad for avoidance of tax.

Bond washing—Transaction-*cum*-dividends.

Recovery of Tax and Penalties:

When default arises—stay during pending appeal—penalty for non-payment—quantum—several modes of recovery of arrears of tax—priorities—reciprocal arrangements between India and Pakistan for recovery of tax.

Refunds:

Legislative changes—procedure—appeal and reference—right of suit to recover—double Income-tax relief.

Other Penalties:

Failure to make payment or deliver returns or statements or allow inspection—false statement in declaration—procedure—composition.

Super tax:

Total income for super tax purposes—extent of application of Income-tax Act—mode of levy on different classes of assessees—exemptions from super tax—marginal relief.

Miscellaneous:

Recognised Provident Funds—super annuation funds—recognition of attendance of assessees—appearance by authorised representatives—service of notice—place of assessment—relief under section 60(2)—procedure.

Reference to High Court:

Procedure before Appellate Tribunal—procedure before High Court.

Appeal to Supreme Court:

When permissible—special leave to appeal—limitation—procedure in appeals to Supreme Court.

Jurisdiction of Courts in income-tax matters.

VI. Actuarial Science.

Paper I.

Insurance:

The syllabus is the same as for Paper I—Insurance General—under Insurance.

Paper II.

Elementary Actuarial Science:—

A. Contracted multiplication—Indices—Logarithms and use of logarithmic tables—Arithmetic and Geometric Progressions.

Compound interest and annuities—Nominal and effective rates—Annuities certain—Loans repayable by instalments—determination of rate of interest involved in a transaction—Securities and loans redeemable by a cumulative sinking fund—Sinking fund assurances.

Elementary interpolation and approximate summation.

B. Probabilities—Definition and the Elementary Theorems—Theory of large numbers.

Mortality Tables—General Nature and Characteristics and uses—Methods of Construction of mortality tables and the principles involved—select, aggregate and ultimate tables.

Premium tables and the factors involved in the calculation of premium—Elementary formulae for the calculation of temporary and life annuities—Endowment and whole life assurances—Life annuities and life assurances.

C. Calculations of Surrender Value and Paid-up Value—Bases involved—Valuation—General Principles—Retrospective and Prospective methods—Valuation schedules of Indian Insurance Act, 1938—Surplus and methods of distribution of surplus.

BOOKS FOR REFERENCE

Finite Differences: By Boule.

Higher Algebra: By Hall and Knight.

Text-Book on Life Assurance: By Symmonds.

VII. Advanced currency and Banking.

Paper I.

Advanced Currency:

The nature of Money.—The invention of Money—Precious Metals, Coins and Paper Money—What is Money?

The Banks.—The Nature of the Banks—The Creation of money—The Balance Sheet—The Central Bank—The Growth of Central Banking—Legal tender money and Bank Money—The Money Market—The Central Bank and Money Market.

The value of money.—The price level—Price fluctuations—Measure of fluctuations—Inflation and Deflation.

The Quantity Theory of Money.—Equation of Exchange—Velocity of Circulation—Limits of the Quantity Theory—The cash balance theory—The Commodity Theory.

Savings and Capital.—Money and income—Current goods and Durable Goods—Capital and Debt—Monetary Demand—Fallacies—Saving—Investment and the Trade Cycle—Money in War Time.

Monetary Policy.—The Objects of the Monetary Policy—The Weapons of the Central Bank and Practical Possibilities.

The Foreign Exchanges.—The Foreign Exchange Market.

The Rate of Exchange.—The value of Currencies—Purchasing power parity theory.

The Gold Standard.—The Functions of the Gold Standard—The Domestic Gold Standard—The International Gold Standard—The Post-war Gold Standard—Its Collapse—Unstable Exchanges.

Exchange Management and Control.—The objects of the Exchange Management—Indirect Control—Intervention—Exchange Restriction—Exchange Clearings—The merits of Exchange control.

International Equilibrium.—The problem of balance—The balance of payments—International Payments position and Inter-war Dis-equilibrium—Pound Versus the Dollar—National Policy in an International System—The International Monetary Fund.

Currency and Exchange in India:

Historical Retrospect—Currency History in the 19th Century—Evolution and Mechanism of the Gold Exchange Standard—Break-down of the Gold Exchange Standard—Indian Paper Currency System—Currency and Exchange during World War I—Smith Committee's Recommendations—Hilton Young Committee's Recommendations—The Ratio Controversy—Gold Bullion Standard for India—Linking of Rupee to Sterling—The export of gold—Ratio Problem—Effect World War II on Indian Currency—War Time Inflation in India—Exchange Control during World War II—India and the Dollar Pool—The Sterling Area—Post-war Exchange Control—India and the I.M.F.—Effects of Partition on Indian Currency System Problems of Post-war Inflation—Devalution—The case for devaluation—State Trading Corporation—The case for revaluation of the Rupee.

Paper II.

Advanced Banking:

Introduction.—The supply of money and price level—The sources of money supplies—The process of creation of Money—The demand for money.

Commercial Banking.—Unit versus Branch—Pure versus mixed. The Banker's Clearing House—The general control of banks over deposits.

The Discount Market.—Institutions of the money market—The Structure of the Discount Market—its traditional functions—The Bills of Exchange—The Treasury Bills—Short Bonds and the present position of the Discount Market in England—The New York Money Market—The Stock Exchange.

Central Banking—Constitutional Questions—General considerations—The Bank of England—The American and other Central Banks.

The Business of Central Banks—The nature of Central Banking—The Bank of England's Weekly Returns—The Bank of England as a source of Cash—The Regulation of the Note Issue—The Bank of England as a Lender of Last Resort—The Bank of England's Initiative in Regulating Cash—Central Banking in the United States—The Central Bank as Banker to the State and to others.

External Transactions and the Banking System.—External payments and Receipts—The Sterling Area—A classification of Transactions outside the Sterling Area—The Redistribution of the London Balances—Exchange Equilisation Account Transactions—The Impact of Marshall Aid Dollars—Conclusion.

The Theory of the Bank Rate.—Modus Operandi according to Keynes and Hawtrey.

Cheap Money Policy.—Mechanism—British Experience.

Qualitative Credit Control.—The Historical Background—American Regulation of Borrowing for Stock Market Speculation—The Regulation of Consumer Credit—Conclusion.

Commercial Bank Assets and Earning Capacity—.Economics significance of the Distribution of assets—The 'Liquidity' of Banker's assets—The attractions of self-liquidating Paper—Some international comparisons—Secular Contraction of the demand for Book Loans—The Problem of Earning Capacity.

The Distribution of Deposits.—The Classification of Deposits—The Proportion of Cash Deposits to Savings Deposits—Deposits Classification and Legal Cash Ratios.

Banking in the New Countries.—The significance of Peculiarities of Newer Banking Systems—Central Banking in the absence of a Short Money Market—Central Banking in a Primitive Banking System Banking in the Commonwealth.

The International Monetary Fund—The International Bank for Reconstruction and Development.

Indian Banking System:

Historical Retrospect—Indigenous Banking—Joint Stock Bank—Effects of Last War on Indian Banking—Effects of Partition on Commercial Banking—Banking Companies Act 1949—Powers of the Reserve Bank under the Banking Companies Act—The persent position of the Commercial Banks—Foreign Exchange Banks—How India's Foreign Trade is financed—The present position of Exchange Banks—The Imperial Bank of India and its successor State Bank of India—The Reserve Bank of India—Creation of a Bill Market in India—The Reserve Bank and Agricultural Credit—The Reserve Bank and the Indian Money Market—Recommendations of the Rural Banking Committees—Land Mortgage Banking—Industrial Banking in India—Indian Stock Exchanges—Concluding Observations.

BOOKS FOR REFERENCE.

Chandler	...	Introduction to money.
Crowther	...	Outlines of Money.
Sayers	...	Modern Banking: _ Banking in the Commonwealth.
R. Chatterjee	...	Indian Economics, Vol. II.
Decock	...	Central Banking.
Evitt	...	Foreign Exchange.
Crump	..	A. B. C. of Foreign Exchange.
Pana Ticker	...	Banking of India.
Muranjan	...	Modern Banking in India.
Saroj Kumar Basu	...	Recent Banking Developments.
E. Thomas	...	Banking, Currency, Exchange.
E. Thomas	...	The Arithmetic of Foreign Exchange.
N. K. Roy	...	Indian Banking and Money Market.
N. K. Roy	...	Indian Currency and Finance.
Sen	...	Central Banking in Undeveloped Foreign Markets.
Evitt	...	Exchange Control.

TEXT-BOOKS FOR PART I.

PART I—ENGLISH—1959.

Prose—Detailed Study—

1. V. K. Aiyappan Pillai—Prelude to Prose—(Blackie)
2. M. R. Ridley—R. L. Stevenson (O.U.P.).

Non-detailed Study—

1. Bronte—C. Jane Eyre.
2. Jepson—Short Stories of the Twentieth Century (Longmans).
3. Tagore—Home and the World (Macmillan).

PART I—ENGLISH—1960.

Detailed Prose—

V. K. Aiyappan Pillai—Prelude to Prose (Blackie).

Dr. Johnson and His Circle—John Bailey (Home University Library).

For Non-Detailed Reading—

Under the Greenwood Tree—Macmillan.

Modern Action and Adventure by G. F. Lamb (Harrap).

Modern Short Stories (19th and 20th Centuries—Dewan Chand Sharma (Blackie).

PART I—ENGLISH—1961.

Prose:

1. Dr. Johnson and his Circle (Bailey)—Home University Library.
2. The Art of English Prose—edited by K. P. K. Menon (Longmans).

Non-Detailed Reading:

1. Ivanhoe—Scott.
2. Our Indian Heritage—D. C. Sharma—Blackie.
3. The Odyssey of Homer—Retold by Barbara Leonie Picard—O.U.P.

VIII. Special Accounts and Audit.

Paper I.

Special Accounts :

Advanced Problems in Partnership Account—Amalgamation, Absorption, External and Internal Reconsruction of Companies in-

volving share valation—Departmental and Branch Accounts—Higher Purchase, Instalment Purchase and Royalty Accounts.

Accounts of Holding Companies—Consolidated Balance Sheet and the Adjustments.

Double account system—Treatment of replacements and Renewals-Bankruptcy and Liquidation Accounts.

Bank account, Assurance and Insurance accounts.

Principles of Costing—Costing Methods—Works routine—Interslocking of cost and financial accounts—Sales organisation and controlg Income-tax Accounts.

Paper II.

Advanced Audit:

General Principles of Audit and vouching as applied to special accounts—Verification and valuation—Capital and revenue—Reserve and Sinking funds—Auditor's duties—Partnership companies, holdin companies, Bank account—Assurance and Insurance companies—Investigations—Audit programmes.

BOOKS FOR REFERENCE.

Spicer & Pegler	...	Book-keeping and Accounts.
W. Prickles	...	Accountancy.
P. N. Wallis	...	Machine Accounting.
H. Simpson	...	Industrial Accounting.
J. A. Scott	...	Budgetary Control and Standard Costs.
H. J. Lunt and A. H. Ripley	...	Manual of Cost Accounts.
Government of India	...	Income-tax Manual.
Spicer & Pegler	...	Practical Auditing.
Dicksee	...	Auditing.
De Paula	...	Principles of Auditing.
Rupram Gupta	...	Advanced Accounts.
J. R. Batliboi	...	Advanced Accounts.

CHAPTER XLVI

DEGREE OF MASTER OF ARTS (M.A.)

Conditions of admission to M.A. Degree.

1. A candidate who has passed the B.A. or the B.Sc. Degree Examination of this University or an examination of some other University accepted by the Syndicate as equivalent thereto shall be permitted to appear and qualify for the M.A. Degree examination of this University after a course of two academic years in a constituent or an affiliated college of this University.

Eligibility for admission.

2. A candidate to be eligible to pursue a course of study for the M.A. Degree in any subject (other than languages) should have previously qualified for the Pass Degree with the particular subject in the main standard. A candidate who has offered any language under Part I, Part II or Part III of the B.A. or the B.Sc. Degree may be permitted to pursue a course of study for the M.A. Degree in that language.

Provided that any graduate in Arts or Science shall be eligible to pursue a course of study for the Master's Degree in Branch II—Politics and Public Administration, in Branch V—Philosophy and in Branch IX—Ancient History and Archaeology.

Provided further that a Candidate who has passed the M.Ed. Degree Examination with Advanced Educational Psychology as an optional subject shall be eligible to pursue a course of study for the Master's Degree in Branch VI—Psychology.

Branches of study

3. The course of study for the Degree shall be in any one of the following branches of knowledge according to a syllabus to be prescribed from time to time :—

Branch I: History.

Branch II: Politics and Public Administration.

Branch III: Economics.

Branch IV: Geography.

Branch V: Philosophy.

Branch VI: Psychology.

Branch VII: Languages.

Branch VIII: Indian Music.

Branch IX: Ancient History and Archaeology.

Details of Courses of study

4. The courses of study in the different branches shall be as follows:

Branch I—History.

1. Essay.
2. History of Civilisation.

3 to 8. Six subjects from any one of the following two groups or four from one and two from the other :

Group A :

(i) Pre-historic India to the Advent of the Aryans.

(ii) History of North India down to the death of Harsha.

(iii) History of North India from the death of Harsha down to 1526.

(iv) South India from the Sangam Epoch down to 1336.

(v) Outline of the History of the Civilisation of Western Asia and Egypt.

(vi) Outline of the History of the Civilisation of South East Asia.

(vii) Vijayanagar.

(viii) History of the Mughals.

(ix) History of the Mahrattas.

(x) History of South India from 1565 to 1805.

(xi) Modern India from 1773.

(xii) History of Indian Art and Architecture.

(xiii) History of Africa from 1486.

Group B :

(i) History of the Mediterranean World from the Persian Wars to the death of Augustus.

(ii) The Empire and the Papacy.

(iii) Advanced History of the Middle-East from 570 to 1250 A.D.

(iv) The Moors in Spain, Sicily and North Africa.

(v) The Ottoman Turks 1250-1924.

(vi) Constitutional History of England upto 1485.

(vii) History of European Expansion from 1453 to 1760.

(viii) History of Europe from 1789.

(ix) Constitutional History of England from 1485.

(x) History of International Relations and Diplomacy from 1878.

(xi) History of the United States of America from 1788.

(xii) History of the Far East from 1840.

Branch II—Politics and Public Administration.

1. Essay.
2. Outline of World Politics.

3. Elements of Sociology.
4. Any one of the following groups :

Group A :

(i) Political Ideas and Institutions of Ancient India

or

Muslim Polity in India.

(ii) European Polity :

Greek and Roman Political Institutions

or

Mediaeval Political Institutions.

(iii) The Theory of the State : Prescribed Texts : (Plato, Aquinas, Hobbes and Burke)

or

(Aristotle, Rousseau, Bentham and Laski.)

(iv) Modern Constitutions including the constitutional History of the U.K. from 1660. France from 1789, the U.S.A. from 1774, Switzerland since 1848 and the U.S.S.R. since 1917.

(v) International Relations and Diplomacy since 1914

or

Indian Constitutional Development, since 1909

or

Elements of Public Administration

or

Modern Local Government in the U.K., the U.S.A., France and India.

Group B :

(i) Principles of Public Administration (with prescribed readings.)

(ii) Elements of management (with prescribed readings.)

(iii) Modern Western Governments (with emphasis on the Constitution and the Public Services and the legal frame work of government). France, the U.K., the U.S.A., Switzerland and the U.S.S.R.

(iv) Modern Asian Governments : China, Japan, Burma, India, Pakistan, Ceylon and Malaya.

(v) Public Personnel Administration

or

International Administration

or

Financial Administration

or

Administrative Law

or

Local Administration.

Branch III—Economics.

1. History of Economic Thought.

2. Currency and Banking.

3. Statistics Economic.

4. Any one of the following :

(i) Rural Economics and Co-operation.
(ii) Labour Problems.
(iii) Economics of Transport.
(iv) Economics of Planning.
(v) Economic History of China and Japan.
(vi) A prescribed Classic.

5. Advanced Economic Theory.
6. Public Finance.
7. Indian Economic Problems.
8. Any one of the following :
   (i) Structure and Problems of Modern Industry.
   (ii) Theory of Economic growth.
   (iii) International Economics.
   (iv) Industrial Fluctuations and Trade Cycles.
   (v) Comparative Economic Systems.
   (vi) Economics of Public Utilities.
   (vii) Mathematical Economics.

Branch IV—Geography.

1. Geography of India.
2. Geography of Asia.
3. Prescribed Continent—North America or Europe or Africa.
4. Political Geography or Historical Geography.
5. Geography of Industries and Transport.
6. Geography of Population and Settlement.
7. Geographical Knowledge and Geographical thought.
8. Advanced study of Maps and Mapping including village surveys.

Branch V—Philosophy.

1. Logic and Metaphysics.
2. Ethics.
3. Recent Indian Philosophy.
4. Recent European Philosophy.
5. Essay.

6. Any one of the following subjects :
   (i) Indian Philosophical Classic.
   (ii) Early Indian Philosophy (before the rise of the systems).
   (iii) A School of Vedanta.
   (iv) Saiva Siddhanta.
   (v) Nyaya-Vaiseshika.
   (vi) Sankhya-Yoga.
   (vii) Buddhist Philosophy.
   (viii) Jaina Philosophy.

7. Any one of the following subjects :
   (i) Prescribed Philosophical work.
   (ii) Greek Philosophy.
   (iii) Scholastic Philosophy.
   (iv) The Philosophy of Kant.
   (v) The Philosophy of Hegel.
   (vi) Islamic Philosophy.
   (vii) Chinese and Japanese Philosophy.

8. Any one of the following subjects :
   (i) Philosophy of Science.
   (ii) Philosophy of History.
   (iii) Philosophy of Religion.
   (iv) Philosophy of Aesthetics.
   (v) Political Philosophy.
   (vi) Comparative Religion.

Branch VI—Psychology.

1. History of Psychology (including Indian Psychology).
2. Psychopathology and Mental Hygiene.
3. Social Psychology.

4. Psychometry.

5. Experimental Psychology I.

6. Experimental Psychology II.

7. One of the following subjects :
   (i) Modern Trends in Psychology.
   (ii) Developmental Psychology.
   (iii) Physiological Psychology.
   (iv) Comparative Psychology.

8. Any one of the following subjects:
   (i) Industrial and Vocational Psychology.
   (ii) Crime and Delinquency.
   (iii) Mental Testing.
   (iv) Applied Social Psychology.

The course of instruction in the above subjects (where necessary) should include visits to appropriate institutions.

Branch VII—Languages.

Candidates shall select any one of the following languages:

ENGLISH

1. Essay.
2. Modern English Literature to 1600.
3. Modern English Literature 1600—1789.
4. Modern English Literature 1789—1832.
5. Modern English Literature 1832 to the present day.
6. A special period (*e.g.* Elizabethan Age or the Age of Wordsworth or Old and Middle English Texts).
7. Shakespeare.
8. History of English Language and Chaucer.

SANSKRIT

The course shall comprise the study of one of the following sections :

SECTION A

1. Principles of Comparative Philology, Elements of Comparative Grammar and History of Sanskrit Language.

2. History of Sanskrit Literature.

3. Books of the Early Period (comprising selections from the Rig-vedic Hymns, Rig-veda, Upoghata, Nirukta, Brahmanas and Upanishads).

4. Books of the Later Period (comprising selections from classical Literature, Poetry, Drama, Prose, Poetics and Prosody.)

5. Selected Portions from Grammar—Siddhanta Kaumudhi and an essay work on Indian Logic.

6. Any one of the following :
   (i) Vyakarana.
   (ii) Nyaya.
   (iii) Vedanta.

7. Any one of the following :
   (i) Alankara.
   (ii) Mimamsa.
   (iii) Sankhya-Yoga.

8. Essay (An essay in English on a subject intimately related to the specified branch or branches of literature chosen under the

special part and an essay in Sanskrit on a general subject, not pertaining to any prescribed Text-book.)

SECTION B

1. Indian History and Culture from the earliest times to 1200 A.D.
2. History of Sanskrit Language and Literature.
3. One of the following :
   (i) Mimamsa.
   (ii) Vedanta.
   (iii) Nyaya.
   (iv) Vyakarana.
   (v) Sahitya.
   (vi) Jyotisha.
4. Essay on subjects connected with the optional.

ARABIC

1. A detailed study of set books in Prose and Poetry both classical and modern.
2. History of Arabic Language and Literature.
3. History of the Arabs.
4. Rhetoric and Ethics.
5. Quranic Studies and Hadith literature.

PERSIAN

1. A detailed study of set books in Prose and Poetry including the works of Indian Writers of Persian.
2. History of Persian Language and Literature.
3. Literary Criticism.
4. Rhetoric and Prosody.
5. Mysticism and Ethics.

URDU

1. A detailed study of set books in Prose and Poetry of the Nineteenth and Twentieth Centuries including drama and fiction.
2. History of Urdu Language and Literature.
3. Literary Criticism.
4. Rhetoric and Prosody.
5. A Study of Persian Language, Grammar and Idiom.

Note : The medium of examination in this subject shall be Urdu.

HINDI

1. The History of Literature and Principles of Literary Criticism.
2. Grammar, Prosody and Poetics.
3. Prescribed Text-books I—Prose and Drama.
4. Prescribed Text-books II—Old Poetry.
5. Prescribed Text-books III—Modern Poetry.
6. The History of the Language and Philology.
7. A Special Author (to be prescribed by the Board from time to time.)
8. A Subsidiary Language—Sanskrit or a Dravidian Language or Modern Trends in English Literature.

MARATHI

1. History of Literature and Literary Criticism.
2. Grammar, Prosody and Poetics.
3. Prescribed Text-books—Prose and Drama.
4. Prescribed Text-books—Modern Poetry.

5. Prescribed Text-books III—Old Poetry.
6. History of Language and Philology.
7. Study of a Special Author.
8. A subsidiary language—Sanskrit or any Modern Indian Language other than Marathi or Trends in Modern English Literature.

TAMIL

1. Grammar, Descriptive Analysis, Comparative Grammar and History of Tamil Language.
2. Prosody, Poetics and Literary Criticism.
3. Prescribed Text-books and History of Literature pertaining thereto—I.
4. Prescribed Text-books and History of Literature pertaining thereto—II.
5. Prescribed Text-books and History of Literature pertaining thereto—III.
6. Tamil Nad and Culture.
7. Optional Subject I.
8. Optional Subject II.

Note : The list of optional subjects will be found in the syllabi.

TELUGU

1 Prescribed Text-books—Poetry
2. Prescribed Text-books—Prose
3. Prescribed Text-books—Drama.
4. Related Language such as another Dravidian Language or Sanskrit or Modern English Literature.

5. History of Telugu Language and Comparative Philology of the Dravidian Languages.

6. History of Telugu Literature and Literary Criticism.

7. A special period of Telugu Literature—a particular poet or a particular branch of Telugu Literature.

8. Grammar, Prosody and Poetics.

KANNADA

1. Prosody, Poetics and Literary Criticism.

2. Prescribed Text-books—Modern Literature, Prose and Drama.

3. History of Karnataka Culture and Inscriptions.

4. Prescribed Text-books I.

5. Prescribed Text-books II.

6. Grammar, Descriptive Linguistics, Comparative Grammar and History of Language.

7. Optional I : Special Period or Poet or Type of Literature.

8. Optional II—Any other language including English.

Note :—If the language chosen is an Indian Language, it should be of B.A. Part II standard ; in the case of English, it will be a paper on Modern English Literature of the M.A. standard.

MALAYALAM

1. Prosody, Poetics and Literary Criticism.
2. Prescribed Text-books : Modern Literature and Drama.
3. History of Kerala Culture and Inscriptions.
4. Prescribed Text-books I.
5. Prescribed Text-books II.
6. Grammar, History of Language and Philology.
7. Optional I : Special Period or Poet or Type of Literature.
8. Optional II : Any other Language including English (If the language chosen is an Indian Language, it should be of B.A. Part II standard ; in the case of English, it will be a paper on Modern Literature for M.A. English).

Note :—The colleges shall give notice a year before the date of the examination of the particular subject or subjects in the optionals they propose to offer in each Branch.

Branch VIII—Indian Music

1. Musicology I.
2. Musicology II.
3. History of Music.
4. Special Subject—

There shall be two sections A and B—'A' pertaining to an Opera and 'B' pertaining to a special subject pres-

cribed from year to year from the following list:

(i) Ancient Tamil Music.

(ii) Hindustani Music.

(iii) Comparative Music.

5. Practical

(Under Practical, the students may offer Vocal Music, or Veena, Gotuvadyam, Violin or Flute).

BRANCH IX—Ancient History and Archaeology

1. Pre-History and Proto-History with special reference to India.
2. History of North India upto 1206 A.D. (Political and Cultural).
3. History of South India upto 1565 A.D. (Political and Cultural).
4. (a) Principles and Methods of Archaeology.
   (b) Field Archaeology.
5. History of the Civilisation of Western Asia and Egypt (upto the 1st Century A.D.) and of South-East Asia (upto 1300 A.D.)
6. The History of Art, Architecture, Sculpture, Iconography and Painting in India (down to the end of the Vijayanagar Empire).
7. Epigraphy and Numismatics.
8. (a) Historical Archaeology (study of selected sites to be prescribed).
   (b) Field Archaeology.

Examinations—when held. 5. There shall be two examinations, one at the end of the first year, *viz.*: Part I and the other at the end of the second year, *viz.*: Part II except in the

case of Branch VII, English and Branch VIII—Indian Music where there shall be only one examination at the end of the second year.

Scheme of Examination 6. The Scheme of examination shall be as follows:

Branch I—History

PART I

			Hours	Marks.
1.	Essay	...	3	100
2.	History of Civilisation	...	3	100

PART II

3.	Optional subject I	...	3	200
4.	Optional subject II	...	3	200
5.	Optional subject III	...	3	200
6.	Optional subject IV	...	3	200
7.	Optional subject V	...	3	200
8.	Optional subject VI	...	3	200
			Total ...	1,400

Branch II—Politics and Public Administration

PART I

			Hours	Marks
1.	Essay		3	100
2.	Outline of World Politics	...	3	150
3.	Elements of Sociology	...	3	150

PART II

Group A or B

4.	Optional subject I	...	3	200
5.	Optional subject II		3	200
6.	Optional subject III		3	200
7.	Optional subject IV		3	200
8.	Optional subject V		3	200
			Total ...	1,400

Branch III—Economics

Part I

		Hours	Marks
1.	History of Economic Thought	3	200
2.	Currency and Banking ...	3	200
3.	Economic Statistics ...	3	150
4.	Optional subject ...	3	150

Part II

		Hours	Marks
5.	Advanced Economic Theory	3	200
6.	Public Finance ...	3	200
7.	Indian Economic Problems	3	150
8.	Optional subject ...	3	150
		Total	1,400

Branch IV—Geography

Part I

		Hours	Marks
1.	Geography of India ...	3	150
2.	Geography of Asia ...	3	150
3.	Prescribed Continent—North America or Europe or Africa ...	3	200
4.	Political Geography or Historical Geography ...	3	150

Part II

		Hours	Marks
5.	Geography of Industries and Transport ...	3	150
6.	Geography of Population and Settlement ...	3	200
7.	Geographical knowledge and Geographical thought ...	3	200
8.	Advanced Study of Maps and Mapping including Village Surveys ...	3	200
		Total ...	1,400

Branch V—Philosophy

PART I

		Hours	Marks
1.	Logic and Metaphysics ...	3	175
2.	Ethics ...	3	175
3.	Recent Indian Philosophy ...	3	175
4.	Recent European Philosophy	3	175
	PART II		
5.	Optional subject I ...	3	175
6.	Optional subject II ...	3	175
7.	Optional subject III ...	3	175
8.	Essay ...	3	175
	Total ...		1,400

Branch VI—Psychology

PART I

		Hours	Marks
1.	History of Psychology ...	3	200
2.	Psychometry ...	3	200
3.	Optional subject I ...	3	150
*4.	Experimental Psychology I (Practicals) ...	3	150
	PART II		
5.	Psychopathology and Mental Hygiene ...	3	200
6.	Social Psychology ...	3	200
†7.	Optional subject II ...	3	150
*8.	Experimental Psychology II (Practicals) ...	3	150
	Total ...		1,400

Note :—*† For details *vide* Syllabus.

Branch VII—Languages

ENGLISH

		Hours	Marks
1.	Essay ...	3	200
2.	Modern English Literature upto 1600 ...	3	150
3.	Modern English Literature 1600—1789 ...	3	150
4.	Modern English Literature 1789—1832 ...	3	150
5.	Modern English Literature 1832 to the present day ...	3	150
6	A special period ...	3	200
7.	Shakespeare ...	3	200
8.	History of English Language and Chaucer ...	3	200
		Total ...	1,400

SANSKRIT

Section A

PART I

		Hours	Marks
1.	History of Sanskrit Literature	3	150
2.	Prescribed Text-books—Early Period ...	3	150
3.	Prescribed Text-books—Later Period ...	3	150

PART II

		Hours	Marks
4.	Comparative Philology, Comparative Grammar and History of Language ...	3	200
5.	Grammar and Elements of Indian Logic ...	3	150
6.	Prescribed Text-books Special subject I—Paper I.	3	150
7.	Prescribed Text-books Special subject I—Paper II ...	3	150
8.	Prescribed Text-books Special subject II ...	3	150
9.	Essay ...	3	150
		Total ...	1,400

SANSKRIT

Section B

PART I

		Hours	Marks
1.	Indian History and Culture upto 1200 A.D. ...	3	200
2.	Prescribed Text-books I ...	3	200
	PART II		
3.	History of Sanskrit Language and Literature ...	3	200
4.	Prescribed Text-books II ...	3	200
5.	Prescribed Text-books III ...	3	200
6.	Prescribed Text-books IV ...	3	200
7.	Essay ...	3	200
		Total ...	1,400

ARABIC

PART I

		Hours	Marks
1.	Prose—Paper I (till 1000 A.D.) ...	3	150
2.	Prose—Paper II (after 1000 A.D.) ...	3	150
3.	Poetry—Paper I (till 1000 A.D.) ...	3	200
4.	Poetry—Paper II (after 1000 A.D.) ...	3	200
	PART II		
5.	Quaranic Studies and Hadith Literature ...	3	200
6.	History of Arabic Language and Literature ...	3	200
7.	History of the Arabs ...	3	150
8.	Rhetoric and Prosody ...	3	150
		Total ...	1,400

PERSIAN

PART I

		Hours	Marks
1.	Prose—Paper I (Iranian Authors) ...	3	150
2.	Prose—Paper II (Indian Authors) ...	3	150
3.	Poetry—Paper I (Iranian Poets) ...	3	200
4.	Poetry—Paper II (Indian Poets) ...	3	200

PART II

		Hours	Marks
5.	Mysticism and Ethics ...	3	200
6.	History of Persian Language and Literature ...	3	200
7.	Rhetoric and Prosody ...	3	150
8.	Literary Criticism ...	3	150
		Total ...	1,400

URDU

PART I

		Hours	Marks
1.	Prose—Paper I (19th Century Prose) ...	3	150
2.	Prose—Paper II (20th Century Prose) ...	3	150
3.	Poetry—Paper I (19th Century Poetry) ...	3	200
4.	Poetry—Paper II (20th Century Poetry) ...	3	200

PART II

		Hours	Marks
5.	History of Language and Literature ...	3	200
6.	Literary Criticism ...	3	200
7.	Rhetoric and Prosody ...	3	150
8.	Persian—Language, Grammar and Idiom ...	3	150
		Total ...	1,400

HINDI

PART I

		Hours	Marks
1.	History of Literature and Principles of Literary Criticism ...	3	175
2.	Grammar, Prosody and Poetics ...	3	175
3.	Prescribed Text-books I—Prose and Drama ...	3	175

PART II

		Hours	Marks
4.	Prescribed Text-books II—Old Poetry ...	3	175
5.	Prescribed Text-books III—Modern Poetry ...	3	175
6.	The History of Language and Philology ...	3	175
7.	A Special Author ...	3	175
8.	A Subsidiary Language ...	3	175
	Total ...		1,400

MARATHI

PART I

		Hours	Marks
1.	History of Literature and Literary Criticism ...	3	175
2.	Grammar, Prosody and Poetics	3	175
3.	Prose and Drama—Prescribed Text-books ...	3	175

PART II

		Hours	Marks
4.	Modern Poetry—Prescribed Text-books ...	3	175
5.	Old Poetry—Prescribed Text-books ...	3	175
6.	History of Language and Philology ...	3	175
7.	Study of a Special Author ...	3	175
8.	Subsidiary Language ...	3	175
	Total ...		1,400

TAMIL

PART I

		Hours	Marks
1.	Prosody, Poetics, and Literary Criticism ...	3	175
2.	Prescribed Text-books III and History of Literature pertaining thereto ...	3	175
3.	Tamil Nad and Culture ...	3	175
	PART II		
4.	Grammar, Descriptive Analysis, Comparative Grammar and History of Tamil Language ...	3	175
5.	Prescribed Text-books I and History of Literature pertaining thereto ...	3	175
6.	Prescribed Text-books II and History of Literature pertaining thereto ...	3	175
7.	Optional subject I ...	3	175
8.	Optional subject II ...	3	175
	Total ...		1,400

TELUGU

PART I

		Hours	Marks
1.	Paper I—Prescribed Text-books—Poetry ...	3	200
2.	Paper II—Prescribed Text-books—Prose ...	3	200
3.	Paper III—Prescribed Text-books—Drama ...	3	200
4.	Paper IV—Related Language	3	100
	PART II		
5.	History of Telugu Language and Comparative Philology of the Dravidian Languages	3	200
6.	History of Telugu Literature and literary criticism ...	3	200
7.	A special period of Telugu Literature—a particular poet or a particular branch of Telugu Literature ...	3	200
8.	Grammar, Prosody and Poetics	3	100
	Total ...		1,400

KANNADA

PART I

		Hours	Marks
1.	Prosody, Poetics and Literary Criticism ...	3	175
2.	Prescribed Text-books—Modern Literature, Prose and Drama ...	3	175
3.	History of Karnataka Culture and Inscriptions ...	3	175
	PART II		
4.	Prescribed Text-books I ...	3	175
5.	Prescribed Text-books II ...	3	175
6.	Grammar, Descriptive Linguistics, Comparative Grammar and History of Language ...	3	175
7.	Optional subject I ...	3	175
8.	Optional subject II ...	3	175
	Total ...		1,400

MALAYALAM

PART I

		Hours	Marks
1.	Prosody, Poetics and Literary Criticism ...	3	175
2.	Prescribed Text-books—Modern Literature, Prose and Drama ...	3	175
3.	History of Kerala Culture and Inscriptions ...	3	175
	PART II		
4.	Prescribed Text-books I ...	3	175
5.	Prescribed Text-books II ...	3	175
6.	Grammar, History of Language and Philology ...	3	175
7.	Optional subject I ...	3	175
8.	Optional subject II ...	3	175
	Total ...		1,400

Branch VIII—Indian Music

PART I

		Hours	Marks
1.	Musicology I ...	3	175
2.	Musicology II ...	3	175
3.	History of Music ...	3	175
4.	Special subject ...	3	175

PART II—*Practical*

	Hours	Marks
Composition of the Musical Trinity including their Samudaya Kritis ...	3	175
Compositions of Minor Composers ...	3	175
Raga Alapana of major ragas and minor ragas ...	3	175
Pallavis in major ragas and minor ragas and singing of Kalpana svaras to themes in minor ragas ...	3	175
Total ...		1,400

BRANCH IX—Ancient History and Archaeology

PART I

		Hours	Marks
1.	Pre-History and Proto-History with special reference to India ..	3	150
2.	History of North India upto 1206 A.D. (Political and Cultural) ..	3	150
3.	History of South India upto 1565 A.D. (Political and Cultural) ..	3	150
4.	(*a*) Principles and Methods of Archaeology ..	3	150
	(*b*) Field Archaeology ..	—	100
	Total ..		700

PART II

	Hours	Marks
1. History of the Civilisation of Western Asia and Egypt (upto the 1st Century A.D.) and of South-East Asia upto 1300 A.D. ..	3	150
2. History of Art, Architecture, Sculpture, Iconography and Painting in India (down to the end of Vijayanagar Empire) ..	3	150
3. Epigraphy and Numismatics ..	3	150
4. (*a*) Historical Archaeology—study of selected sites (to be prescribed) ..	3	150
(*b*) Field Archaeology ..	—	100
Total ..		700

Eligibility for the Degree. 7. A candidate shall be declared qualified for the Degree of Master of Arts if he passes Part I and Part II of the examination securing the requisite marks.

A candidate shall be deemed to have passed Part I of the examination for the Degree, if he obtains not less than 40 per cent of the marks in each of the papers or division, as the case may be. A candidate who fails in any subject or in any division shall be required to sit again for the examination in such subject or division along with Part II of the examination.

A candidate shall be deemed to have passed Part II of the examination, if he obtains not less than 40 per cent of the marks in each division or subject of the examination, as the case may be, and 45 per cent of the aggregate marks in Parts I and II taken together.

A candidate for Branch VII—English and Branch VIII—Indian Music, shall be declared qualified for the Degree of Master of Arts, if he obtains not less than 45 per cent of the aggregate marks and not less than 40 per cent in each subject of the examination.

Divisions in the subjects for examination. 8. The divisions of the subjects in the branches shall be as follows :—

Branch V—Philosophy

(*a*) Logic, Metaphysics and Ethics.

(*b*) Recent Indian Philosophy and Recent European Philosophy.

(*c*) Optional subjects I, II and III.

(*d*) Essay.

Branch VII—Languages

SANSKRIT

SECTION A

(*a*) History of Sanskrit Literature ; Prescribed Text-books Early Period ; Prescribed Text-books Later Period.

(*b*) Comparative Philology etc. ; Grammar ; and Elements of Indian Logic and Essay.

(*c*) Special subjects.

SECTION B

(*a*) Indian History and Culture upto 1200 A.D. ; Prescribed Text-books I.

(*b*) Prescribed Text-books II, III and IV.

(*c*) History of Sanskrit Language and Literature and Essay.

ARABIC

(*a*) Prose—Paper I ; Prose—Paper II.

(*b*) Poetry—Paper I ; Poetry—Paper II.

(*c*) Quaranic Studies and Hadith Literature and History of Arabic Language and Literature.

(*d*) History of the Arabs and Rhetoric and Prosody.

PERSIAN

(*a*) Prose—Paper I ; Prose—Paper II.

(*b*) Poetry—Paper I ; Poetry—Paper II.

(*c*) Mysticism and Ethics and History of Persian Language and Literature.

(*d*) Rhetoric and Prosody and Literary Criticism.

URDU

(*a*) Prose—Paper I ; Prose—Paper II.

(*b*) Poetry—Paper I ; Poetry—Paper II.

(*c*) History of Language and Literature and Literary Criticism.

(*d*) Rhetoric and Prosody and Persian—Language, Grammar and Idiom.

HINDI

(*a*) History of Literature and Principles of Literary Criticism ; Grammar, Prosody and Poetics ; Prescribed Text-books I.

(*b*) Prescribed Text-books II and III ; The History of Language and Philology.

(*c*) A Special Author and a subsidiary langauge.

MARATHI

(*a*) History of Literature and Literary Criticism; Grammar, Prosody and Poetics ; Prose and Drama—Prescribed Text-books,

(*b*) Modern Poetry ; Old Poetry and History of Language and Philology.

(*c*) Study of Special Author and subsidiary language.

TAMIL

(*a*) Prosody, Poetics and Literary Criticism ; Prescribed Text-books III and History of Literature ; Tamil Nad and Culture.

(*b*) Grammar, Descriptive Analysis, Comparative Grammar and History of Tamil Language ; Prescribed Text-books I and History of Literature ; Prescribed Text-books II and History of Literature.

(*c*) Optional subjects I and II.

TELUGU

(*a*) Prescribed Text-books—Papers I, II and III ; Related Language.

(*b*) History of Telugu Language and Comparative Philology of the Dravidian Languages ; History of Telugu Literature and Literary Criticism ; A special period ; Grammar, Prosody and Poetics.

KANNADA

(*a*) Prosody, Poetics and Literary Criticism ; Prescribed Text-books — Modern Literature, Prose and Drama ; History of Karnataka Culture and Inscriptions.

(*b*) Prescribed Text-books I and II ; Grammar, Descriptive Linguistics, Comparative Grammar and History of Language.

(*c*) Optional subjects I and II.

MALAYALAM

(*a*) Prosody, Poetics and Literary Criticism; Prescribed Text-books—Modern Literature, Prose and Drama ; History of Kerala Culture and Inscriptions.

(*b*) Prescribed Text-books I and II ; Grammar, History of Language and Philology.

(*c*) Optional subjects I and II.

Classification of successful candidates. 9. Candidates who pass the examination for the Degree at the first appearance shall be ranked according to the order of merit. There shall be two classes.

(*a*) Candidates who secure not less than sixty per cent of the aggregate marks in the Whole Examination (Parts I & II where such parts exist) shall be declared to have passed the examination in the First Class, provided they pass the examination (Parts I and II wherever prescribed) at the first appearance.

(*b*) All other successful candidates shall be declared to have passed the examination in the Second Class.

(*c*) Candidates who obtain 75 per cent of the marks and above in any subject or division shall be deemed to have passed the subject or division with distinction, provided they pass the examination (in Parts I and II wherever prescribed) at the first appearance.

Subsequent appearance. 10. (a) Candidates who fail in any subject or any division under Part I shall be required to sit for the exami-

nation in such subject or division along with Part II of the examination.

(*b*) Candidates who fail in any subject or any division under Part II of the examination shall be required to sit again, for the examination in all the subjects of the examination under Part II. Credit shall be given to the Pass obtained in Part I of the examination for such subsequent appearance.

Restriction of appearance for the examination.

11. No candidate shall be permitted to take the examination—under Part II wherever prescribed for the M.A. Degree on more than three occasions.

Symbolical Representation of marks.

12. Symbolic representation shall be adopted in declaring the results and a statement of marks shall not be furnished.

Symbol A will denote 60 per cent and above of the marks.

„ B „ 45 per cent and above but below 60 per cent of the marks.

„ C „ 40 per cent and above but below 45 per cent of the marks.

„ D „ Distinction as having obtained 75 per cent and above in any one of the subject or division ; provided the candidate passes the whole examination (Parts I and II wherever prescribed) at the first appearance.

„ F „ Failure.

M.A.'s to qualify in another Branch.

13. A candidate who has qualified in one Branch may be permitted to qualify in another Branch after a regular course of study for a period of two years, in a constituent or an affiliated college.

A candidate who has qualified in Branch VIII—Indian Music, may be permitted to offer another practical subject in a subsequent year. While sitting for the test in the additional subject, he shall be exempted from appearing for the written examination.

No fresh Diploma shall be awarded in such cases but an endorsement shall be made that the candidate has qualified in an additional practical subject.

'14. A candidate (i) who has passed the B.A. (Hons.) Degree Examination of this University after a three-year course of study after the Intermediate examination

or

(ii) who has taken the M.A. Degree of this University by efflux of time

or

(iii) who has passed the M.A. Degree examination of this University under the Old Regulations after Post-graduate study

shall be permitted to appear for the M.A. Degree examination under these Regulations in the particular main subject in which he has qualified for the B.A. (Hons.) or M.A. under the Old Regulations, after putting in a year's course in a constituent or an affiliated College.

Examination once a year.

15. The examination shall be held once a year.

Branch I—History

History of Civilization:

Books recommended:

A. G. Toynbee: A study of History (Abridgement of Volumes 1-6 and Volumes 7-10) by D.C. Somerwill (O.U.P.), 1949 and 1957 respectively.

Group A

1. Pre-Historic India to the advent of the Aryans :

Books recommended :

Bruce Foote : Indian Pre-historic and Proto-historic Antiquities.

Piggott : Pre-historic India.

Imperial Gazettee of India, Volume 2.

T. C. Hodson : India—Census-Ethnography.

V. Rangacharya : Pre-historic India. (Pre-Musalman India, Vol. I).

S. K. Dikshit : An Introduction to Archaeology.

Bagchie : Pre-Aryan and Pre-Dravidian in India.

Heras : Studies in Proto-Indo-Mediterranean Culture.

Marshall : Mohenjo-daro and Indus Civilisation—3 volumes.

Mackay : Indus Civilisation.

K. N. Dikshit : Pre-historic Civilisation of the Indus Valley.

Masson—Oursel (ed) : Ancient India and Indian Civilisation.

Wheeler : Indus Civilisation.

Ancient India (Bulletin of the Archaeological Survey of India.)

2. History of North India down to the death of Harsha :—

Books recommended :

Cambridge History of India, Vol. I.

Majumdar (ed) : History and Culture of the Indian People, Volumes 1 to 3.

H. C. Rayachaudhuri : Political History of Ancient India (6th edition, 1953.)

Sathianathier : History of India, Vol. I.

R. K. Mookerji : Hindu Civilisation.

Basham ; The Wonder that was India.

Macdonell : India's Past.

Jayaswal : Hindu Polity (3rd edition, 1955).

Altekar : State and Government in Ancient India (2nd edition, 1955).

Ghoshal : History of Hindu Political Theories (2nd edition, 1927).

Garratt (ed.) : The Legacy of India.

R. K. Mookerji : Chandragupta and his Times.

R. K. Mookerji : The Gupta Empire.

Tripathi : History of Ancient India.

D. C. Sircar (ed.) : Select inscriptions bearing on Indian History and Civilisation.

3. History of North India from the Death of Harsha down to 1526:—

Books recommended :

Cambridge History of India, Vol. 3.

Majumdar (ed.) : History and Culture of the Indian People, Vol. 4.

Sathianathier : History of India, Vols. 1 and 2.

Tripathi : History of Kanauj.

Basham : The Wonder that was India.

Ray : Dynastic History of North India, Vols. 1 and 2.

Majumdar, Rayachaudhuri and Datta : Advanced History of India, Part II.

Ishwari Prasad: Mediaeval India.

Ishwari Prasad : A Short History of Muslim rule in India (3rd Edition).

Srivastava : Sultanate of Delhi (2nd edition, 1953).

Tripathi : Some aspects of Muslim Administration (2nd edn., 1956).

Elliot and Dowson : History of India as told by its own historians edited by Commissarial.

Hodivala : Studies in Indo-Muslim History.

4. South India from the Sangam Epoch down to 1336 :—

Books recommended :

Nilakanta Sastri : History of South India.

Slater : Dravidian Element in Indian Culture.

Mahalingam : South Indian Polity.

S. Krishnaswami Aiyangar : Evolution of Hindu Administrative Institutions in South India.

S. Krishnaswami Aiyangar : Some contributions of South India to Indian Culture.

P. T. Srinivasa Iyengar : History of the Tamils.

Kanakasabhai: Tamils 1800 years ago.

Altekar : Rashtrakutas and their times.

Gopalachari: Early History of the Andhras.

Gopalan: History of the Pallavas of Kanchi.

Minakshi: Administration and social life under the Pallavas.

Nilakanta Sastri: The Pandyan Kingdom.

Nilakanta Sastri: The Cholas (2nd Edition).

Sewell: Historical inscriptions of South India (Ed. by S. Krishnaswami Aiyangar).

Elliot (ed.): Coins of South India.

5. Outlines of the History of the Civilisation of Western Asia and Egypt.

Western Asia and Egypt.

The lands of Western Asia—The Valley of the Nile ; the Tigris—Euphrates Valley ; Elam.

Relative chronologies in the archaeology of Western Asia, Egypt Palestine and Syria, Anatolia, Mesopotamia and the Iranian plateau.

The Stone age and the Neolithic age in Palestine.

Pre-historic cultures in the Tigris—Euphrates Valley. The Half and the Obeid periods ; the Uruk and the Jemdet—Nasr periods.

Sumer, Akkad and Egypt during the Pre-historic age and the age of the First Egyptian dynasty. The Caucasus—the Hamito—Semitne and the Caspian peoples.

Origin and Original home of the Sumerians. Earliest Sumero—Akkadian dynasties up to the time of Sargon. From Sargon to Hummurabi.

The Hittite and Sumerian peoples. Their history. The coming of the Indo-Europeans to Western Asia.

Egypt from the Second dynasty to the Hyksos.

The art and archaeology of Western Asia. The splendour that was Egypt. The proto literate, the early dynastic, the Akkadian, the Neo-Sumerian, the Kassite, the Assyrian and the Neo-Babylonian periods in Mesopotamia.

The art and archaeology of Asia Minor under the Hittites of the Aramaeans and Phoenicians in Syria. The art and architecture of Ancient Persia and Afghanistan.

Books recommended :

Garrod and Bate : The Stone Age of Mount Carmel (London, 1937).

Friedrich Hrozny : Ancient History of Western Asia, India and Crete (Prague, 1953).

Henri Frankfort : The Art and Architecture of the Ancient Orient (London, 1954).

M. A. Murray : The Splendour that was Egypt (London, 1949)

Georges Contenaw : Every day life in Babylon and Assyria (London, 1954).

R. Ghirshman : Iran.

6. Outline of the History of the Civilisation of South-East Asia.

South-Eastern Asia.

The Stone Age in South-Eastern Asia.

Ceylon : Introduction of Buddhism into Ceylon ; Archaeological History of the Island ; Anuradhapura ; Sigiriya ; Polumnaruva.

Burma : The Kingdoms of Pyu and the Mon in Burma ; the founding of Pagan and the era of the great temple-builders ; stages in the spread of Buddhism in Burma.

Siam : The Mon period in Siam ; the Kingdom of Dvaraveti ; the Khmers ; the Tai Kingdoms of Suk'ot'ai and Ayudhya.

The Malay Peninsula and the Kingdom of Srivijaya.

Java and Bali : The Sailendras ; Indo-Javanese art Chandu Mendoet, Borobudur, Prambanam; the Majapahits.

Cambodia: Its Indian Origin; the Kingdom of Funa; the Kingdom of Angkor ; Ancient Khmer art; The Great temple of Angkor; the Bayom. Tai conquest of Cambodia.

Indian Elements in the culture of South-East Asia.

Books recommended:

W. L. Movius Jr: Early Man and Pleistocene Stratigraphy in Southern and Eastern Asia.

Reginald Le May: The Culture of South-East Asia (London, 1954.)

H. G. Quaritch-Wales: The making of Greater India.

Benjamin Rowland: The Art and Architecture of India (London, 1953)

Henrich Zimmer: The Art of Indian Asia (2 Volumes) (New York, 1955.)

7. *Vijayanagar* :—

Books recommended :

Sewell : A Forgotten Empire.

Venkataramanayya : Vijayanagar, Origins of the City and Empire.

S. Krishnaswami Aiyangar : Ancient India, Vol. 2.

S. Krishnaswamy Aiyangar : Sources of Vijayanagar History.

Nilakanta Sastri and Venkataramanayya : Further Sources of Vijayanagar History.

Saletore : Social and Political life in the Vijayanagar Empire, 2 Vols.

Mahalingam : Administration and Social Life under Vijayanagar.

Mahalingam : Economic Life of the Vijayanagar Empire.

Heras : Aravidu Dynasty of Vijayanagar.

Longhurst : Hampi Ruins.

Purchas : His Pilgrims—Vol. 10.

8. *History of the Mughals* :—

Books recommended :

Cambridge History of India, Vol. 4.

Ishwari Prasad : Short History of Muslim Rule in India (3rd edition).

Praudin : The Mughal Empire.

K. C. Majumdar : The Imperial Age of the Mughals (2nd edition, 1940).

Sirvastava : The Mughal Empire.

Sathianathier : History of India, Vol. 2.

Garratt and Edwardes : Mughal Rule in India.

Sarkar : Mughal Administration (4th edition).

Sri Ram Sharma : Mughal Government and Administration.

Gupta : Rise of the Sikhs (2nd edition 1932).

Elliot and Dowson : History of India as told by its own Historians, Vols. 6 and 7.

Abdul Fazl's Ain-i-Akbari (Trans. by Ranking Haig and Lowe—2nd edition by Sarkar).

Bilimoria (ed) : Letters of Aurangazib.

9. History of the Mahrattas :

Books recommended :

Kincaid and Parasnis : History of the Marathas—3 Vols.

Sardesai : New History of the Marathas, 7 Vols.

Sardesai : Main currents in Maratta History.

Ranade : Rise of the Maratha Power.

Sen : Administrative System of the Marattas.

Sarkar : Sivaji and His Times (4th edition).

Sen : Foreign Biographers of Sivaji.

Sinha : Rise of the Peshwas.

Joshi : Clash of Three Empires.

Patwardhan and Rawlinson : Source-Book of Maratha History

10. History of South India from 1565 to 1805 :—

Books recommended :

Sathianathier : Nayaks of Madura.

— Do — Tamilakam in the 17th Century.

Cambridge History of India, Vol. 5.

Dodwell : Dupleix and Clive.

Wilks : History of Mysore.

N. R. Sinha : Hyder Ali.

Roberts : India under Wellesley.

C. S. Srinivasachari : History of Madras.

Vriddhagirisan : Nayaks of Tanjore.

11. Modern India from 1773 :—

Books recommended :

Cambridge History of India, Vols. 5 and 6.

Roberts : History of British India (3rd edition).

Garratt and Thompson : Rise and Fulfilment of British Rule in India.

Philips : East India Company.

Yusuf Ali : Cultural History of India during the British Period.

Gurmukh Nihal Singh : Landmarks in Indian Constitutional and National Development (3rd edition).

Keith : Constitutional History of India.

Ramsay Muir (ed) : The Making of British India.

A. C. Bannerji: Making of the Indian Constitution—2 Vols.

12. History of Indian Art and Architecture.

Books recommended :

Smith : A History of Fine Art in India and Ceylon (ed. by Codrington).

Havell : Indian Architecture.

Brown : Indian Architecture, 2 Vols.

Brown : Indian Painting (5th edition).

Kramrisch : Indian Sculpture.

Do Art of India through the Ages.

Vogel : Buddhist Art in India, Ceylon and Java.

Coomaraswamy : The Art of India and Indonesia.

Do Rajput Painting.

Ashton : The Art of India and Pakistan.

Gangoly : Indian Architecture (2nd edition, 1947).

Do South Indian Bronzes.

T. G. Aravamudhan : Portrait Sculpture in South India.

Wilkinson : Mughal Painting.

13. History of Africa from 1486:—

Books recommended :

Cambridge Modern History, Vol. I.

Prestage: Portuguese Pioneers.

Ramsay Muir: Expansion of Europe (5th ed.)

Townsend and Peake: European Colonial Expansion.

Harris: Europe and Africa.

Hoskins: European Imperialism in Africa.

Morel: The Black Man's Burden.

Slorne: Greater France in Africa.

Young: Egypt.

Jones and Munro: History of Abyssinia.

Walker: A History of South Africa (2nd ed., 1940).

Group B

1. History of the Mediterranean World from the Persian Wars to the Death of Augustus :—

Books recommended :

Cambridge Ancient History, Vols. 3 to 9.

Cary : A History of the Greek world.

Do A History of Rome (2nd edition).

Rostovotzeff : A History of the Ancient World, Vol. 2.

Seignobos : A History of Ancient Civilisation.

Stobart : The Glory that was Greece.

Do The Grandeur that was Rome.

Livingstone (ed.) : The Legacy of Greece.

Bailey (ed.) : The Legacy of Rome.

Bevan : The world of Greece and Rome.

Holland Rose : Mediterranean in the Ancient world (2nd edition).

Fowler : The City-State of the Greeks and the Romans.

Osborn : Our debt to Greece and Rome.

Tucker : Life in Ancient Athens.

Do Life in the Roman world.

Botsford : A Source-book of Ancient History.

2. The Empire and the Papacy :—

Books recommended :

Cambridge Mediaeval History, Vol. 5.

Bryce : The Holy Roman Empire (5th edition).

Tout : The Empire and the Papacy.

Medley : The Church and the Empire.

Deanesby : A History of the Mediaeval Church.

Henderson : A History of Germany (Rev. ed., 1916).

Stubbs : Germany in the Early Middle Ages.

Stephens : Hilderbrand and his Times.

Henderson (ed.) : Select Historical Documents of the Middle Ages.

3. Advanced History of the Middle East 570-1258 A.D. :—

Books recommended :

Shaikh Inayathullah : Geographical factors in Arabian Life and History.

Hitti : The History of the Arabs.

Do The History of Syria.

T. W. Arnold : Caliphate.

Do Legacy of Islam.

Margoliouth : Mohammed and the Rise of Islam.

Ghulam Sarwar : The Holy Prophet.

Syed Ameer Ali : The History of the Saracens.

Syed Ameer Ali : The spirit of Islam.

Sir William Muir : The Caliphate.

Do Life of Muhammad.

T. W. Arnold : Preaching of Islam.

J. Zaidan : Omayyads and Abbasids

N. A. Faris : Arab Heritage.

J. Hell : Arab Civilisation.

Guy Le Strange : The Lands of the Eastern Caliphate.

Osborne : Islam under the Caliphs of Baghdad.

Khuda Baksh : Orient under the Caliphs.

Do History of Islamic Civilisation (2 Vols.)

Do Studies—Indian and Islamic.

Do Politics in Islam.

Mez : Renaissance of Islam (Tr. by Khuda Baksh and Margoliouth).

Carl Brokelmann : History of Islamic People.

Gustave Von Grunebaum : Mediaeval Islam.

Gibb : Islam and the West.

Ahiya: The Crusades in the Later Middle

Lanepoole : Saladin.

Wellhausen : Arab Kingdom and its fall.

Guy le Strange : Bagdad under the Abbasid Caliphate.

George Sarton : Introduction to the History of Science, 3 Vols. (Relevant portions).

Encyclopaedia of Islam : (Relevant portions).

4. Moors in Spain, Sicily and North Africa:—

Books recommended for study :

T. W. Arnold : Legacy of Islam.

O' Leary : History of the Fatimid Dynasty.

Lanepoole : Egypt in the Middle Ages.

Do Muhammadan Dynasties.

Conde : History of the Domination of the Arabs in Spain (Tr. by Mrs. Jonathan Foster) Vol. I.

Do Do Vol. II.

Do Do Vol. III.

Joseph McCabe : Splendour of Moorish Spain.

Dozy : Spanish Islam.

Lanepoole : Art of Saracens in Egypt.

Do Moors in Spain.

Gayangos : History of the Muhammadan Dynasties in Spain.

5. Ottomon Turks, 1250-1924 A.D. :—

Books recommemded for Study :

Lanepoole : The Story of Turkey.

G. W. F. Stripling : The Ottomon Turks and the Arabs.

A. H. Lyber : The Government of the Ottomon Empire.

W. Miller : The Ottomon Empire and its Successors.

M. L. Shay : The Ottomon Empire from 1720-1734 (as revealed in the Despatch of the Venetian Baili).

N. Sousa : The Capitulatory Regime of Turkey.

Kohn : A History of Nationalism in the East.

Toynbee and Kirkwood : Turkey.

Allen : The Turkish Reformation.

Howard : The Partition of Turkey.

E. G. Mears : Modern Turkey.

A. E. Yalman : The Development of Modern Turkey—measured by its Press.

V. J. Puryear : International Economics and Diplomacy in the Near East.

6. Constitutional History of England upto 1485 :—

Books recommended :

Taswell: Langmead : English Constitutional History (10th edition 1947).

Maitland: Constitutional History of England (ed. by Fisher).

White : Making of the English Constitution.

Joliffe : Constitutional History of Mediaeval England.

Pollard : Evolution of Parliament (2nd edition).

Jenks : Book of English Law (5th Edition, 1953).

Adams and Stephens : Select Documents of English Constitutional History.

List of Documents for study :

Stubbs—*Select Chapters* :

Laws of Alfred (C. 890.)

Edgar's Ordinance of the Hundred (959-75).

Adams and Stephens—*Select Documents of English Constitutional History* :

Ordinance of William I separating the Spiritual and Temporal courts (undated).

Henry I's Charter of Liberties (1100).

The Constitutions of Clarendon (1164).

The Assize of Clarendon (1166).

The Assize of Northampton (1176).

Assize of Arms (1181).

Form of proceeding on the Judicial Visitation (1194).

Writ of Summons to the Council of St. Albas (1213).

The Great Charter of Liberties (1215).

Provisions of Oxford (1258).

The Third Statute of Westminster (1290).

Writ of Summons to Parliament (1295).

Confirmation Cartarum (1297).

The New Ordinances (1311).

Revocation of the New Ordinances (1322).

Articles of Accusation against Edward II (1327).

Act to secure the Rights of Peers (1341).

Revocation of the Above Statute (1341).

Grant on Conditions (1348).

The Statute of Treasons (1352).

Statute of Praemunire (1353).

Act concerning Justices of the Peace (1361).

Impeachment of Lyons (1376).

Account of Expenditure required by Parliament (1378).

Delegation of powers by the Parliament of Shrewsbury (1398).

Deposition of Richard II (1399).

Haxey's case (1399).

Common to originate Money Bills (1407).

King Agrees not to alter the Petitions of the Commons (1414).

Law regarding the Shire Electorate (1429).

7. History of European Expansion from 1453 to 1760 :—

Books recommended :

Cambridge Modern History—Vols. 1 to 6 (relevant portions.)

Prestage : Portuguese Pioneers.

Davies : The Golden Century of Spain.

Johnson : Europe in the Sixteenth Century.

Ogg : Europe in the Seventeenth Century.

Johnson : Age of the Enlightened Despots (15th ed.)

Wakeman : Ascendancy of France.

Seeley : Expansion of England.

Egerton : A History of British Colonial Policy.

Marriott : European Commonwealth.

Mahan : Influence of Sea-power on History.

Robinson and Beard : Readings in Modern European History.

8. History of Europe from 1789 :—

Books recommended :

Grant and Temperley : Europe in the Nineteenth and Twentieth Centuries (6th edition).

Lipson : Europe in the Nineteenth and Twentieth Centuries (5th ed.)

Kettlebey : A History of Modern Times (new edition, 1940).

Ramsay Muir : A Brief History of Our Own Times (4th edition).

Mowat : Contemporary Europe and Overseas.

Holland Rose : Development of European Nations—2 Vols.

Slossan : Twentieth Century Europe.

Marriott : Remaking of Europe (21st edition).
Do Europe and Beyond.
Hearnshaw: Main Currents of European History.

9. Constitutional History of England from 1485 :—

Books recommended :

Taswell: Langmead : English Constitutional History (10th ed., 1947).

Maitland : English Constitutional History (edited by Fisher).

Adams : Constitutional History of England (New ed., 1935).

Keir : The Constitutional History of Modern England (5th ed., 1953).

Anson : Law and Custom of the Constitution, Vol. I (5th ed., 1922), Vols. 2 and 3 (4th ed., 1935).

Dicey : Law of the Constitution (9th ed. by Wade, 1939).
Jennings : Law and the Constitution.

Robertson : Select Statutes, Cases and Documents to illustrate English Constitutional History (9th ed., 1949).

List of Documents for study :

Adams and Stephens—*Select Documents of English Constitutional History* :

Establishment of the Court of (1487).

Strode's case (1512).

Ecclesiastical Appointments Act (1534).

Act of Supremacy (1534).

The Lex Regia (1539).

Oath of a Privy Councillor (1571).

Commission of a Justice of the Peace (1579).

Resolution on the Norfolk Election case (1586).

Queen's Message with regard to the Monopolies (1601).

Act in Shirley's case (1604).

Bate's case (1606).

Calvin's case (1608).

The Petition of Right (1628).

Act for the Abolition of the Star Chamber (1641).

The Grand Remonstrance (1641).

Sentence of the High Court of Justice on Charles I (1649).

The Instrument of Government (1653).
Declaration of Breda (1660).
Danby's Impeachment (1679)
Habeas Corpus Act (1679).
Hale's case (1689).
The Civil List (1689).
The Mutiny Act (1689).
Bill of Rights (1689).
Act of Settlement (1701).
Place Act (1707).
Septennial Act (1716).
Peerage Bill (1719).
Mansfield's Decision against General Warrants (1764).
Dunning's Resolution (1780).
Fox's Liberal Act (1792).
Reform Act (1832).
Reform Act (1867).
Supreme Court of Judicature Act (1873).
Appellate Jurisdiction Act (1876).
Reform Act (1884).
Robertson—*Select Statutes, Cases and Documents* (9th edition 1949).
Skinner v—East India Company (1666).
Shirley v—Fagg (1675).
Ashby v—White (1704).
Stockdale v—Hansard (1839).
Parliament Act (1911).
Statute of Westminster (1931).

10. History of International Relations and Diplomacy from 1878 :—

Books recommended :

Schumann : International Politics (5th edition).
Mowat : A History of European Diplomacy.
Gooch : Recent Relations in European Diplomacy (4th edition)
Mansergh : The Coming of the First World War.
Fay : Origins of the First World War (New Edn., 1950).

Somervell : Between Two Wars.

Namier : Diplomatic Prelude.

Rayner : Twenty Years' Truce.

Carr : International Relations.

Do Twenty Years' Crisis (2nd edition).

Murray : From the League to the United Nations.

Gathorne Hardy: A Short History of International Affairs (4th edition).

Lippmann : The Cold War.

Hartmann (ed.): Basic Documents of International Relation.

11. History of the United States of America from 1788 :

Books recommended :

Somervell : History of the United States.

Strong : Story of the American People (2nd edition).

Charles and Mary Beard: History of the United States.

Do Rise of American Civilisation—4 Vols

Holst : Constitutional History of the United States.

Bryce : American Commonwealth.

Merriam : American Political Theories.

Laski : American Democracy.

Preston (ed.) : Documents Illustrative of American History.

12. History of the Far East from 1840 :—

Books recommended :

Latourette : A Short History of the Far East (2nd ed., 1951).

Do The Chinese, their History and Culture (3rd ed.).

Do A History of Japan.

Lattimore : Making of Modern China.

Vinacke : A History of the Far East in Modern Times. (4th edition).

Clyde : The Far East (2nd ed.)

Hudson : The Far East in World Politics.

Owen : Imperialism and Nationalism in the Far East.

Branch II—Politics and Public Administration

Compulsory Papers

I. Essay.

II. Outline of World Politics—

1. Schuman, F. L. : International Politics.
2. Padelford and Lincoln : International Politics.
3. Pearcy, Fifield etc. : World Political Geography.
4. Patterson, E. M. : An Introduction to World Economics.

III. Elements of Sociology—

1. Bogardus, E. S. : Sociology.
2. Synder and Wilson : Roots of Political Behaviour.
3. Chase, S. : The Proper Study of Mankind.
4. Barnes, H. E. (ed.) : Introduction to the History of Sociology.
5. Lerner and Lasswell (ed.) : Policy Sciences.
6. Bentley, A. F. : Inquiry into Inquiries.
7. Schular, E. A. (ed.) : Outside Readings in Sociology.
8. Christensen and Kripatrick : People, Politics and the Politician.
9. Rose, A. M. : Theory and Method in the Social Sciences.

Optional Papers

Two groups of 5 papers each.

Group A

1 (a) Political Ideas and Institutions of Ancient India :—

1. Kane, P. V: History of Dharma Sastra, Vol. III.
2. Cambridge History of India, Vol. I.
3. Kautilya : Arthasastra (Tr. by Shama Sastri).
4. Manava Dharma Sastra (S. B. E., Oxford, 1886).
5. Tiruvalluvar : Tirukkural, Porutpal.
6. Bandopadhyaya : Development of Hindu Political Theories.
7. Goshal, U. N. : History of Hindu Political Theories.
8. Jayaswal, K. P. : Hindu Polity (Rev. Edn., 1943).
9. Dikshitar, V. R. R. : Hindu Administrative Institutions.

1 (b) Muslim Polity in India :—

1. Cambridge History of India, Vols. III and IV.
2. Elliot and Dowson : History of India as told by its own Historians, Vol. III (Ziauddin Barani).
3. Babur : Memoirs (Tr. by Beveridge).
4. Abl Fazl : Aini Akbari (Tr. by Blockman and Garret).
5. Sarcar, J. N. (Ed.) : Letters of Aurangzeb.
6. Quareshi, I. H. : The Administration of the Sultanate of Delhi.
7. Tripathi, R. P. : Some aspects of Muslim Administration in India.
8. Sarcar, J. N. : Mughal Administration.
9. Ibn Hasan : The Central Structure of the Mughal Empire.
10. Saran, P: The Provincial Administration of the Mughals.

2 (a) European Polity : Greek and Roman Political Institutions.

1. Fowler, W. W. : The City-State of the Greeks and Romans.
2. Greenidge, A. H. : Handbook of Greek Constitutional History.
3. Bonner, R. J.: Aspects of Athenian Democracy.
4. Myres, J. L. : Political ideas of the Greeks.
5. Glotz, G. : The Greek city and its institutions.
6. Glover, T. R. : Democracy in the Ancient World.
7. Home, L. : Roman Political Institutions.
8. Declareuil, J. : Rome the Law Giver.
9. Greenidge, A. H. : Roman Public Life.
10. Stevenson, G. H. : Roman Provincial Administration.
11. Freeman, E. A. : A History of Federal Government in Greece Italy.
12. Cambridge Ancient History, Vol. X, Chaps. V to VIII and XVIII.

2 (b) European Polity : Mediaeval Political Institutions.

1. Ganshof : Feudalism (Tr. by Grierson).
2. Sidgwick : Development of European Polity.
3. Hammond : Outlines of Comparative Politics.
4. Pirenne : Mediaeval cities.

5. Limmern : Hanseatic League.
6. Vinogradoff : Growth of the Manor.
7. Dill : Roman Society in the last century of the Western Empire.
8. Poole : Illustrations of the history of mediaeval thought and learning.
9. McIlwain : Growth of Political Theory in the West.
10. Cambridge Mediaeval History, Vol. I, Chap. XX; Vol. II, Chaps. XX and XXI; Vol. III, Chap. XVIII; Vol. IV, Chap. XXIII; Vol. VI, Chap. XVIII; Vol. VIII, Chap. XX.

3. The Theory of the State (Prescribed Texts).

1. Plato : Republic (Tr. by Jowett).
2. Acquinas : Political Writings (World's Classics Edn.)
3. Hobbes : Leviathan, Parts I, II and III.
4. Burke : Select Works—3 Vols., Ed. by Payne.

or

1. Aristotle : Politics (Tr. by Barker.)
2. Rousseau : Social Contract (Tr. by Tozer).
3. Bentham : Fragment on Government.
4. Do Theory of Legislation.
5. Laski : Problem of Sovereignty.
6. Do The State in Theory and Practice.

4. Modern Constitutions :—

1. Bagehot : The English Constitution.
2. Keir : Constitutional History of Modern Britain.
3. Ogg : English Government and Politics.
4. Campion, Robson, etc. : British Government since 1918.
5. Wheare : Government by Committee.
6. Barthelemy : Government of France.
7. Sait : Government of the French Republic.
8. Taylor : The Fourth French Republic.
9. Bryce : The American Commonwealth.

10. Ogg and Ray : Essentials of American Government.
11. Binkley and Moos : A Grammar of American Politics.
12. Bryce : Modern Democracies.
13. Bonjour : Real Democracy in operation.
14. Ghosh : The Government of the Swiss Republic.
15. Carr : The Bolshevik Revolution, 3 Vols.
16. Fainsod : How Russia is ruled.
17. Finer : Government of Greater European powers.

5 (a) International Relations and Diplomacy since 1914 :—

1. Palmer and Perkins : International Relations.
2. Schwartzenberger : Power Politics.
3. Hartmann : Basic Documents on International Relations.
4. Do. Readings in International Relations.
5. Nicolson, H. : Evolution of Diplomatic method.
6. Carr, E. H. : Twenty years' Crisis (1919-1939).
7. Friedriech, C. J. : Foreign Policy in the making.
8. London, K. : How Foreign Policy is made.
9. Strausz-Hupe and Possony : International Relations in the Age of Conflict between Democracy and Dictatorship.
10. Horewutz : Diplomacy in the Near and Middle East, Vol. II.
11. Hass : Dynamics of International Relations.
12. Holland (Ed.) : Asian Nationalism and the West.
13. Hankey ; Diplomacy by Conference.

5 (b) Indian Constitutional Development since 1858 :—

1. Banerjee : Indian Constitutional Documents, Vols. II and III.
2. Keith (Ed.) : Speeches on Indian Policy, Vol. II.
3. Banerjee : The Making of the Indian Constitution, 2 Vols.
4. Banerjee : The Constituent Assembly of India.
5. Banerjee and Bose : The Cabinet Missions to India.
6. Archbold ; Outlines of Indian Constitutional History.

7. Chailley : Administrative Problems of India.
8. Coupland : Report on India.
9. Do India—a Restatement.
10. Keith : Constitutional History of India.
11. Majumdar : Indian Speeches and Documents on British Rule.
12. Prasad : Origins of Provincial Autonomy.
13. Sharma, M. P. : Local Self-Government in India.
14. The Government of India Acts, 1919 and 1935.
15. The Indian Independence Act, 1947.
16. Basu : Commentary on the Constitution of India.
17. Gledhill : The Republic of India.

5. (c) Elements of Public Administration:—

1. White : Introduction to Public Administration.
2. Lepawsky : Administration.
3. Tead : The Art of Administration.
4. Appleby : Big Democracy.
5. Ruthnaswamy : Principles and Practice of Public Administration.
6. Waldo : The Administrative State.
7. Finer : Theory and Practice of Modern Government.
8. Warner : Principles of Public Administration.
Walter : Parliamentary control of Finance.
10. Chester : Civil Service in a changing Society.
11. Majumdar (Ed.) : Public Administration in India (Indian Political Science Association).
12. Mosher, Kingsley and Stahl : Public Personnel Administration.

5 (d) Modern Local Government :—

1. Robson : The Development of Local Government (3rd edn.).
2. Chapman : Introduction to French Local Government.
3. Do. The Prefects and Provincial France.
4. Cole : Local and Regional Government.

5. Drummond : The Finance of Local Government.
6. Finer : English Local Government.
7. Richards : Delegation in Local Government.
8. Tinker : Foundations of Local Self-Government in India, Pakistan and Burma.
9. Snider : American State and Local Government.
10. Bromage : Introduction to Municipal Government and Administration.

Group B

I. Principles of Public Administration :—

1. Bulan, Eldersveld and Janowitz : Political Behaviour.
2. T. Nigro : Readings and Documents in Public Administration.
3. Waldo : Ideas and Issues in Public Administration.
4. Lepawsky : Administration.
5. Urwick : The Elements of Administration.
6. Metcalfe and Urwick : Dynamic Administration.
7. Gulick and Urwick : Papers on the Science of Administration.
8. Simon etc : Public Administration.
9. Marx (Ed.) : Elements of Public Administration.
10. Gans : Frontiers of Public Administration.
11. Gans : Reflections on Public Administration.
12. Finer : Theory and Practice of Modern Government.
13. Von Mises : Bureaucracy.
14. Hoover Commission Report.

II. Elements of Management :—

1. Drucker : The Practice of Management.
2. Gouldner : Patterns of Industrial Bureaucracy.
3. Koontz and Donnell : Principles of Management.
4. Millett : Management in the Public Service.
5. Stryker : A Guide to Modern Management Method.
6. Mannheim : Freedom, Power and Democratic Planning.

7. Barnard : The Functions of the Executive.
8. Parsons and Shils : Towards a General Theory of Action.
9. Simon : Administrative Behaviour.
10. Stein : Public Administration and Policy Development.
11. Friedrich and Cole : Responsible Bureaucracy.
12. Hoslett : Human Factor in Management.
13. Hoslett : Management and Morale.
14. Barnard : Organisation and Management.

III. Modern Western Governments :—

1. Friedrich : Constitutional Government and Democracy.
2. Neumann : European and Comparative Government.
3. Marx (Ed.) : Foreign Governments.
4. Finer : Theory and Practice of Modern Government.
5. Finer : Governments of Greater European Powers.
6. Campion : British Government since 1918.
7. Costin and Watson : The Law and the Working of the Constitution, Vol. 2.
8. Le May : British Government, 1914-1953.
9. Kelley and Harrison : The American Constitution—Its Origin and Development.
10. Pickles : France—The Fourth Republic.
11. Taylor : The Fourth French Republic.
12. Rostow : Dynamics of Soviet Society.
13. Fainsod : How Russia is ruled.
14. Shotwell : Governments of Continental Europe.
15. Ogg and Ray : Essentials of American Government.

IV. Modern Asian Governments :—

1. Peaslee : Constitutions of Nations, 3 Vols.
2. Clyde : The Far East.
3. Emerson : Representative Government in South-East Asia.
4. Mills etc. : The New World of South-East Asia.

5. Sprenkal : New China.
6. Greene : The Far East.
7. Holland (ed.) : Asian Nationalism and the West.
8. Jennings : Constitution of Ceylon.
9. Colleris : Public Administration in Ceylon.
10. Donnison : Public Administration in Burma.
11. Jones : Public Administration in Malaya.
12. Venkataraman and Govindarajan : History of Governments.
13. Mote : Japanese—Sponsored Governments in China.
14. Pan Wei-tung : Chinese Constitution.
15. Chi'en Tuan-Sheng : The Government and Politics o China.
16. Brandt, etc. : Documentary History of Chinese Communism.
17. Van Aduard : Japan : From Surrender to Peace.
18. Gledhill : The Republic of India.
19. Appleby : Public Administration in India.
20. Morris-Jones : Parliament in India.
21. International Year Book and Statesman's 'Who is Who', 1955.

V. Public Personnel Administration :—

1. Mosher, etc. : Public Personnel Administration
2. Waldo : The Administrative State.
3. Finer : The British Civil Service.
4. O'Malley: The Indian Civil Service.
5. Kingsley : Representative Bureaucracy.
6. Sharp : The French Civil Service.
7. Friedrich and Cole : Representative Bureaucracy (Study of the Swiss Civil Service).
8. Graham : Education for Public Administration.
9. McLean : The Public Service and University Education.
10. Halsey : Training Employees.
11. Planty etc. : Training Employees and Managers.

12. Godine : Labour Problem in the Public Service.
13. Robson : Problems of Nationalised Industry.
14. Anstey and Mercer : Interviewing for Selection of Staff.
15. Holden : Top Management Organisation and Control.
16. Menzies and Anstey : Staff Reporting.

VI. International Administration :—

1. Nobleman : Select Bibliography on International Administration.
2. Sharp and Kirk : Contemporary International Policies.
3. Eagleton : International Government.
4. Dunn : The practice and procedure of International Conferences.
5. Potter : Introduction to the Study of International Organisations.
6. Hill : International Organisation.
7. Hill : Immunities and Privileges of International Officials.
8. Ranshofen : Wertheimer : The International Secretariat.
9. Purves : The International Administration of an International Secretariat.
10. Hudson : The International Court.
11. Hudson : International Tribunals.
12. Jenks : Headquarters of International Institutions.

VII. Financial Administration :—

1. Wattal : Parliamentary Financial Control in India.
2. Gyan Chand : The Financial System of India.
3. Gyan Chand : Local Finance in India.
4. Beer, S. H. : Treasury Control.
5. Chubb, B. : The Control of Public Expenditure.
6. Grooves, H. M. : Financing Government.
7. Koonitz and Gable : Public Control of Economic Enterprise.
8. Financial control, its place in Management (Institute of Public Administration, London).
9. Dalton : Public Finance.

10. Public Finance Survey—India.
11. Buck : Budget.
12. The Hoover Commission Report.
13. Proceedings of the Public Accounts Committee and Parliamentary Debates—India.
14. Relevant articles in *Public Administration and Public Administration Review.*

VIII. Administrative Law :—

1. Brissand : French Public Law.
2. Berman : Justice in Soviet Russia.
3. Schlesinger : Soviet Legal Theory.
4. Dicey : Law of the Constitution.
5. Jennings : Law and the Constitution.
6. Jaffe : Administrative Law, Cases and Materials.
7. Hart : Administrative Law.
8. Griffith and Streat : Principles of Administrative Law.
9. Robson : Justice and Administrative Law.
10. Pennock : Administration and the Rule of Law.
11. Morrison : Government and Parliaments.
12. Dickinson : Administrative Justice and the Supremacy of Law on the United States.
13. Pekelis : Law and Social Action.

IX. Local Administration : —

1. Harris : Comparative Local Government (Hutchins '49).
2. Cole : Local and Regional Government (Cassel '47).
3. Hadfield and McColl : British Local Government.
4. Robson : Development of Local Government.
5. Tinker : Foundation of Local Self-Government in India Pakistan and Burma.
6. Sharma : Local Self-Government in India.
7. Gyan Chand : Local Finance in India.
8. Warren : The Local Government.
9. Hill : The Local Government Officer.

10. Westmidland : Local Government and Central Control.
11. Adrian : Governing Urban America.
12. Chapman : Introduction to French Local Government.
13. Halloway : State and Local Government in the United States.
14. Carter, Ranney and Herz : The Government of the Soviet Union.
15. I. P. A. : The Elements of Local Government Establishment Work.

Branch III—Economics

Syllabus.

PART I.

1. *History of Economic thought :*
   1. Gray, A. : Development of Economic Doctrine.
   2. Gide and Rist : History of Economic Doctrines.
   3. Cannan, E. : Review of Economic Theory.
   4. Roll, Eric : History of Economic Thought.
   5. Homan Paul, T. : Contemporary Economic Thought.
   6. Stigler, G. J. : Production and Distribution Theories.
   7. Whittaker, E. : A History of Economic Ideas.
   8. Heimann, E. : History of Economic Doctrines.
   9. Schumpeter, J. A.: History of Economic Analysis.

2. *Currency and Banking :*
   1. Robertson, D. H. : Money.
   2. Halm : Monetary Theory.
   3. Chandler, L. V. : Introduction to Monetary Theory.
   4. Keynes, J. M. : Treatise on Money, 2 Vols.
   5. Day, A. C. L. : Outline of Monetary Economics.
   6. Crowther, G. : Outline of Money.
   7. Sayers, R. S. : Modern Banking.
   8. Sayers, R. S. : American Banking System.
   9. Sayers, R. S. : Banking in the British Commonwealth.
   10. Dacey, W. M. : British Banking Mechanism.
   11. Haberler, G. V. : Theory of International Trade.

12. Malhotra, D. K. : Indian Currency and Exchange.
13. Muranjan, S. K. : Modern Banking in India.
14. De Kock, M. H. : Central Banking.
15. Sen : Central Banking in under-developed countries.

3. *Economic Statistics :*

1. R. G. D. Allen : Statistics for Economists.
2. Ghosh & Chowdry : Statistics in theory and practice.
3. Rhodes, E. C. : Elementary Statistical Methods.
4. Connor, L. R. : Statistics in Theory and Practice.
5. Mills, F. C. : Statistical Methods.

Optional.

4. (i) *Rural Economics and Co-operation :*

1. Cohen, R. L. : The Economics of Agriculture.
2. Thomas, Edgar : Agricultural Economics.
3. O'Brine, G. : Agricultural Economics.
4. Casselman : The Co-operative Ideals.
5. Nanavati and Anjaria : Rural Problems in India.
6. Hough, E. M. : The Co-operative Movement in India.

(ii) *Labour Problems :*

1. Watkins, G. S. : An Introduction to the Study of Labour Problems.
2. Dobb, M. : Wages.
3. O'Brien, G. : Labour Organisation.
4. Lister : Economics of Labour.
5. The Royal Commission on Labour in India—Report.
6. Sargant Florence : Labour.

(iii) *Economics of Transport :*

1. Bonavia : Economics of Transport.
2. Milne : Economics of Inland Transport.
3. Bigham : Economics of Transporttaion.

4. Bhatnagar, K. P. & Others : Transport in Modern India.

5. Troxal, E. : Economics of Transport.

(iv) *Economics of Planning :*

1. Baldwin, C. D. : Economic Planning : Its Aims and Implications.
2. Wootton, Barbara : Freedom under Planning.
3. Meade, J. E. : Planning and the Price Mechanism.
4. Balakrishna, R. : Regional Planning in India.
5. Krishnamurthy, B. V. : Pricing in Planned Economy.

(v) *Economic History of China and Japan :*

1. Allan, G. C. : A short Economic History of Modern Japan.
2. Allan, G. C. : Modern Japan and its Problems.
3. Uychara, G. E. : The Industry and Trade of Japan.
4. Tawney : Land and Labour in China.
5. Lockwood : Economic Development of Japan.
6. Moulton : Japan.
7. Mitsubishi Economic Research Bureau : Japanese Trade and Industry.
8. Habbard : Eastern Industrialization and its effect on the West.
9. Lieu : China's Industry and Finance.
10. Adler, S. : The Chinese Economy.

(vi) *Classic :*

Ricardo, David : Principles of Political Economy and Taxation.

PART II.

5. *Advanced Economic Theory :*

1. Marshall, Alfred : Principles of Economics.
2. Stonier and Hague : Text-book of Economic Theory.
3. Chamberlin, E. : Theory of Monopolistic Competition.

4. Robinson, Joan : Economics of Imperfect Competition.
5. Hicks, J. R. : Value and Capital.
6. Samuelson, P. A. : Economics : An Introductory Analysis.
7. Stigler, G. F. : The Theory of Price.
8. American Economic Association : Readings in the Theory of Income Distribution.
9. Robbins, L. : Nature and Significance of Economic Science.
10. Knight, R. G. : Risk, Uncertainty and Profit.
11. Keynes, J. M. : General Theory of Employment, Interest and Money.
12. Klein : The Keynesian Revolution.
13. Dillard, Dudley : Economics of J. M. Keynes.
14. Ellis : Survey or Contemporary Economics.

6. *Public Finance :*

1. Allan and Brownlee : Economics of Public Finance.
2. Taylor, P. E. : Economics of Public Finance.
3. De Vitti de Marco : First Principles of Public Finance.
4. Hicks, U. K. : Public Finance.
5. Dalton, H. : Principles of Public Finance.
6. Hicks and Rostas : Taxation of War Wealth.
7. Groves, M. M. : Financing Government.
8. Groves, M. M.: Post-war Taxation and Economic Progress.
9 Kaldor, N. : Expenditure Tax.
10. Kaldor, N. : Report on Tax Reform in India.
11. Balakrishna, R. : Recent Trends in Indian Finance.
12. Report of the Taxation Enquiry Commission in India

7. *Indian Economic Problems :*

1. Jathar & Jathar : Indian Economics.
2. Chatterjee, R. N. : Indian Economics.
3. Jain, P. C. : Problems in Indian Economics.
4. Balakrishna, R. : Studies in Indian Economic Problems.

Optional.

8. (i) *Structure and Problems of Modern Industry :*

1. Robinson, E. A. G. : Structure of Competitive Industry.
2. Robertson, D. H. : Control of Industry.
3. Haney, L. H. : Business Organisation and Combination.
4. Kaplan, A. D. H. : Small Business.
5. Robinson, E. A. G. : Monopoly.
6. Burns, A. R. : The Decline of Competition.
7. Mehta, M. M. : Structure of Indian Industries.
8. Balakrishna, R. : Measurement of Productivity in Indian Industry.
9. Andrews, P. W. S. : The Theory of Manufacturing Business.

(ii) *Theory of Economic Growth :*

1. Lewis, Arthur : Theory of Economic Growth.
2. Rostow, W. : The Process of Economic Growth.
3. Robinson Joan: The Accumulation of Capital.
4. Domar, E. D.: Essays in the theory of Economic Growth.
5. Myrdal, Gunnar : Economic Theory and Under developed Regions.
6. Nourske : Capital Formation and Under-developed countries.
7. Schumpeter, J. A. : The Theory of Economic Development.

(iii) *International Economics :*

1. Ellsworth, P. J. : International Economy.
2. Enke and Selera : Interantional Economics.
3. Harrod : International Economics.
4. Viner, J. : Studies in the theory of International Trade.
5. Meade, J. E. : Balance of Payments.
6. Meade, J. E. : Trade and Welfare.

7. American Economic Association : Readings in International Trade.

(iv) *Industrial Fluctuations and Trade Cycles :*

1. Haberler, G. : Prosperity and Depression.
2. Kalecki, M. : Essays in the theory of Economic Fluctuations.
3. Kalecki, M. : Studies in Economic Dynamics.
4. Wilson, T. : Fluctuations in Income and Employment.
5. Hansen, A. H. : Fiscal Policy and Business Cycles.
6. Duesenberg, J. S. : Income, Employment and Public Policy.
7. Schumpeter, J. A. : Business Cycles.
8. American Economic Association : Readings in Business Cycle Theories.

(v) *Comparative Economic Systems :*

1. Blodgett : Comparative Economic Systems.
2. Schumpeter, J. A. : Capitalism, Socialism and Democracy.
3. Sweezy : Socialism.
4. Wright : Capitalism.
5. Oscar Lange and Taylor : Economic Theory of Socialism.
6. Robinson, Joan : Essay on Marxian Economics.
7. Crosland, C. A. R. : The Future of Socialism.
8. Strachy : Contemporary Capitalism.

(vi) *Economics of Public Utilities :*

1. Glaeser : Economics of Public Utilities.
2. Sleeman : Public Utiilties.
3. Jones & Bigham : Public Utilities.
4. Robson, A. : Public Enterprise.
5. Robson, A. : Problems of Nationalized Industries.

(vii) *Mathematical Economics* :

1. Allen, R. G. D. : Mathematical Analysis for Economists.
2. Samuelson, P. : Introduction to Economics.

Branch IV—Geography

Paper I—Geography of India.

Part I

Location and size—Frontiers—Space relations—Structure—Relief—Drainage Patterns and River regimes—Climate—Climatic types—Soil—Soil erosion, Distribution of fauna—Vegetation—Irrigation—Agriculture—Mineral resources—Industries—Economic Development—Population—Economic Problems. Correlation between regional, types—Natural, cultural economic and political regions.

Part II

Detailed and systematic study of the regional geography of India with special reference to Madras State.

Paper II—Geography of Asia

1. Physical setting:—Structure and Relief—Drainage patterns and river regimes.
2. Climate and climatic types.
3. Vegetation and soils.
4. Resources : Agricultural, industrial and mineral.
5. The peoples—Historical retrospect—Commercial and Cultural contacts—Impact of cultures.
6. Recent Political changes.
7. Population Studies.

Part II :

8. Detailed study of South West Asia, South East Asia, The U.S.S.R., China and Japan and Central Asia.

Paper III

(a) North America

General :

Size and situation—Expansion of North America and geographical influences—Structure and relief, climatic types—Drainage patterns and river regimes, Soils and Vegetation—Natural regions—Resources—North America in World Economy.

Regional :

Detailed study with special reference to:

A. CANADA.

B. U.S.A.

C. MEXICO.

D. CENTRAL AMERICA.

References :

Geographical Regions of Canada—Ed. by D. F. Putnam.

North America—Jones and Bryan.

North America—Smith and Phillips.

U.S.A. and Canada—A. J. Wright.

(b) Europe

General :

Size and situation—Structure—Relief—Climatic types—Drainage patterns and river regimes—Soil and vegetation types—Fauna—Natural Regions—Resources—Geographical and political regions of Europe and their relation to natural regions—Europe in World economy.

Regional :

Britain with special reference to East Anglia, London Basin and Scottish highlands.

France with special reference to Paris Basin, Rhone—Sone Valley and French Alps.

Switzerland.

Holland and Denmark.

The Western Germany.

References :

A Geography of Europe—G. W. Hoffman.

Geography of Europe—G. Gottmann.

Europe—S. Van Valkenburg and Huntington.

Great Britain—Essays in Regional Geography—Ed. by A. C. Ogilive.

France—H. Ormsby.

Industrial Britain—Wilfred Smith.

The British Isles—Stamp and Beaver.

(c) Africa

General :

Size and situation—Discovery and Partition—Structure and relief—Climatic types—Hydrography—Soils and Vegetation types—Fauna—Natural regions—Resources—Geographical Regions and their relation to Natural Regions—Problems of Political, Cultural and Economic development.

Regional :

Detailed study with special reference to—

a. Egypt.

b. Mediterranean Africa.

c. Equatorial Africa.

d. South Africa.

References :

Africa—L.D. Stamp.

Africa—W. Fitzerald.

Southern Africa Vols. 1 and 2—J. H. Wellington.

Africa :—Lord Hailey.

Paper IV (a)—Historical Geography

Part I :

(a) Relations of History to Geography.

(b) The scope of Historical Geography.

The classical and modern schools.

The rise and fall of empires in relation to their geographical settings.

(i) The greecian and Roman Empires.

(ii) Islam.

(iii) Colonial Empires.

Part II :

Historical Geography of one selected country—England, U.S.A. or India.

Select References :

1. American Geography Inventory and Prospect—Edited by P. E. James.
2. Historical and Political Geography of Europe—by Pounds.
3. Environment and Nations by Taylor.

Paper IV (b)—Political Geography

A. The scope of political geography—Definition—The relationship between Politics and Geography—The different approaches to the study of political geography— The method of political geography.

B. The origin and development of political geography, contribution of Ratzel, Kjellin, Mahaen, Mackinder and Houshafer (German School of Geopolitics).

II. State—State and Nation and Nationalism—National capitals—Hierarchy of States—The Physical and Human elements in the evolution and expansion of states—International and Interstate relations—The concept of optimum State.

III. Frontiers and boundaries—The Geographic elements of the frontier— The evolution of the frontier—The distribution of frontiers—Classification of boundaries—Boundary problems.

IV. Geopolitical structure—The structure of—

1. Europe with special reference to France, Switzerland and Belgium.
2. America and U.S.S.R.
3. India,

V. The political patterns of the world.

Select references :

1. Political Geography and the World Map by Goblet.
2. The Earth and the State by Whittlesey.
3. World Political Geography by Pearcy and Fifield.
4. Elements of Political Geography by Valkenburg.
5. International boundaries by S. W. Boggs.
6. American Geography—Inventory and Prospect—Edited by P. E. James.
7. Nature of Geography by Hartshorne.
8. Great Capitals—Cornish.
9. New Compass of the World—Edited by Steffanson.
10. Our evolving and civilization by G. Taylor.
11. Twentieth Century Geography—Taylor.
12. Environment, Race and Migration—Taylor.

Paper V—Geography of Industries and Transport

Part I :

Geography of Industries.

i. Concept and Bases of Industrialisation.
ii. Classification of Industries.
iii. Location of Industries.
iv. World distribution of Industries.
v. Industrial Landscapes and Planning.
vi. Measurement and Mapping of the distribution of Industries.
vii. Industrial development in relation to trade.

Part II :

Transport.

i. Distribution and Patterns of different modes of Transport—Railways—Roadways—Waterways and Airways and Principles of Transport development.
ii. Transport and Regional Planning.
iii. Measurement and Mapping of Transport.

Part III :

i. Physical and Economic Bases of Foreign Trade.

ii. Theory of comparative cost and the International division of labour.

iii. Geographical analysis of World trade.

iv. Trends in International Trade.

Paper VI—Geography of Population and Settlement

I. (a) *Distribution of population:* (1) Patterns and Theories of distribution. (2) Factors affecting distribution—(a) Geographical (Climate, land forms, soils, resources and space relationships) (b) Cultural factors (Economic activities and technology, social organisations). (3) General theories and laws of population of distribution.

(b) *Growth of Population* :—Historical and modern—The different theories affecting the growth—Factors affecting the growth Population trends—Factors affecting the trends—Geographical economic, social and demographic trends and their implications.

(c) Population movements, past and present.

(d) Population Problems and Policies.

II. (a) *Settlements* :—Distribution and Patterns of rural settlements; Distribution of House types.

(b) Distribution and Patterns of Urban settlements—Quantitative analysis—Classification of urban settlements—Morphology and function of urban settlements.

III. Methods of analysis and mapping of population and settlements.

Select References :

1. The Determinants and consequences of Population Trends, United Nations, New York, 1953.

2. Population Problems by Thompson.

3. The Principles of Human Geography—Blache.

4. Human Geography by Brunhes.

5. Man's Adaptation to Nature—Bryan.

6. Geography of Towns—Smailes.

Paper VII—Geographical Knowledge and Geographical Thought

1. The growth of geographical knowledge from earliest period upto the 15th century.
2. The period of discoveries and explorations and their contributions.
   (a) The opening up of Asia, North and South America, Australia and New Zealand.
   (b) Polar regions, Alps and the Himalayas.
3. Development of geographical thought :—the various schools of thought—the contribution of Humboldt, Ritter, Mercater, Ratzel, Richthofen, Blache, Brunhes, Mackinder, Herbertson, Hartshorne, De Mortonne, De Mangeon, Sorre.
4. Place of Geography in Modern times.

References :

1. The Making of Geography—Dickinson and Howarth.
2. The Geography of Nature—R. Hartshorne.
3. Modern Geographers—G. R. Crone.

Paper VIII—Advanced study of Maps and Mapping

I. Mapping and diagrammatic representation of relief, climatic, economic and population data—Use of pantograph and Planimeter.

II. Surveying with chain, prismatic Compass, plane table, level, clinometer, Sextant and theodolite.

III. Study and interpretation of Indian and foreign topographical maps. (U. K., U.S.A., German, French, Swiss, etc.)

IV. Geographical Survey of an approved village.

BRANCH V—PHILOSOPHY

Syllabuses

1. Logic and Metaphysics

I. Logic :

(*a*) The Problem of Logic.—The nature and kinds of Judgment-Traditional, Idealistic, Realistic and Instrumentalistic—Nature of Inference—Scientific Method.

(*b*) The six Pramanas according to Indian Logic (means of valid knowledge).

II. Theories of Knowledge:

(*a*) Scepticism, Realism, Neo-Realism, Critical Realism, Idealism, Pragmatism and Logical Positivism.

(*b*) Svatahpramanya and Paratahpramanya according to Indian Logic, Khyati vada.

III. Theories of Reality :

(*a*) Examination of the Categories of Substance, Relation, Space, Time, Causality, Self and God ; Mechanism and Teleology.

(*b*) *Western* : Agnosticism, Idealism, Realism, Evolutionary Theories of Spencer, Lloyd Morgan, Alexander, Smuts and Whitehead.

(*c*) *Indian* : Vedic—Upanishadic—Cosmic and acosmic trends —Pluralism, Dualism and Monism as typified in the darsanas.

IV. Theory of Value : Naturalistic and Idealistic—Value and Religion—Traid of Values of Truth, Goodness and Beauty—Value and Reality.

For detailed study :

1. Blandshard : The Nature of Thought. Vols. I and II. In Vol. I, Chs. 8, 9 and 10 and in Vol. II, Chs. 26, 27 and 30.
2. D. M. Datta : Six Ways of Knowing.
3. Stebbing : Modern Introduction to Logic.
4. History of Philosophy, Eastern and Western Vol. II, Part IV. (Government of India Publication).

For consultation :

1. James : Pragmatism.
2. Joachim : Nature of Truth.
3. Bosanquet : Logic or the Morphology of Knowledge, Vols. I and II.
4. R. B. Perry : Present Philosophical Tendencies.
5. S. Kuppuswami Sastri : A Primer of Indian Logic.
6. S. C. Chatterjee : Nyaya Theory of Knowledge.
7. Taylor : Elements of Metaphysics.

2. Ethics

I. Types of Ethical Theory :

A. *Western*—Hedonism, Kantian Rationalism, Utilitarianism. Idealistic Theories, Humanism and Marxism.

B. *Indian*—Charvaka Hedonism, Purvamimamsa Ritualism. The Ethics of the Gita : Svadharma and Nishkama Karma, The Concepts of Akarta and Abhokta, Anasakti Yoga, Daivi and Asuri Sampat, Yajna, Dana and Tapas : Three-fold distinction based on Satva, Rajas and Tamas, Ethics in Budhism and Jainism, Ethical ideas of the Kural, Ethics in Vedanta Systems.

II. Ethical Concepts :

(*a*) Right and Good—Virtues and Duties—Punishment : various theories—Moral significance of Institutions : Family and State.

(*b*) Value, Progress : Conservative and Liberal Trends—Determinism and Free Will—The Doctrine of Karma—The place of Krpa—Individualism and Universalism—Lokakshema and Lokasangraha.

III. Applications of Ethics in the spheres of Economics, Politics and Legislation, and of Religion including the following topics : Property, Brahmacharya and Marriage, Social Legislation, Pancha sila and Co-existence, samarasya in religion, Gandhian ideals of Ahimsa, Satya and Satyagraha, the sarvodaya and bhudan movements.

Books for General Reading :

1. C. D. Broad : Five Types of Ethical Theory.
2. T. H. Hill : Contemporary Ethical Theories.
3. R. A. P. Rogers : A Short History of Ethics.
4. F. H. Bradley : Ethical Studies.
5. Rashdall : Theory of Good and Evil, 2 Vols.
6. S. K. Maitra : Hindu Ethics.
7. P. S. Sivaswami Ayyar : Origin and Devlopment of Hindu Moral Ideals.
8. P. N. Srinivasachari : Ethical Philosophy of the Gita.
9. S. Rathakrishnan : Religion and Society.
10. Gregg : The Power of Non-Violence.

3. Recent Indian Philosophy

As represented by the founders of the Arya Samaj and the Brahma Samaj, Swami Vivekananda, Rabindranath Tangore, Mahatma Gandhi, Sri Aurobindo, Sri Ramana and Radhakrishnan.

Books for reference :

1. D. S. Sarma : Hinduism through the Ages.
2. Cultural Heritage of India : Relevant portions (Ramakrishna Mission Publication).
3. Swami Vivekananda : Karmayoga, Bhakti Yoga and Raja Yoga.
4. Rabindranath Tagore : Gitanjali, Religion of Man, Sadhana.
5. S. Radhakrishnan : Philosophy of Rabindranath Tagore.
6. S. Radhakrishnan : An Introduction to Mahatma Gandhi.
7. Aurobindo : Essays on the Gita.
8. Aurobindo : Synthesis of Yoga.
9. Haridas Chandun : The Philosophy of Integration or the Metaphysical Synthesis inherent in the teachings of Aurobindo.
10. S. K. Maitra : Studies in Aurobindo's Philosophy.
11. S. K. Maitra : The Meeting of East and West in Aurobindo's Philosophy.
12. Ramana : Ulladu Narpadu (Fifty Verses on Existence).
13. Ramana : Upadesa Saram.
14. Arthur Osborne : Talks with Maharishi, 3 Vols. (Asram Publication).
15. S. Radhakrishnan : Idealist View of Life.
16. S. Radhakrishnan : Eastern Religions and Western Thought.
17. S. Radhakrishnan : The Recovery of Faith.
18. Paul Arthur Schlift : The Philosophy of Sarvapalli Radhakrishnan.

4. Recent European Philosophy.

*1. General Characteristics of the period 1800 to 1900 in European Philosophy, Idealistic and Realistic Trends.

2. Neo-Hegelianism and Absolute Idealism—Bradley and Bosanquet as representatives of Absolute Idealism—Royce as an American

representative—Conflict between Absolutistic and Personalistic Trends —Temporalism as a re-action against Idealism—Italian Neo-Idealism (Croce) and Evolutionism (Bergson).

3. Neo-Realism—G-E-Moore and Bertrand Russel as representatives of the school—Neo-Realistic theory of sense, of external relations, of mind and memory, of truth and falsity—Brief account of Neo-Realistic metaphysics as represented by S. Alexander—Neo-Realism and Propositional Logic.

4. The rise of Pragmatism, Humanism and Instrumentalism—Brief account of the precursors: Renouvier, Bergson and Pierce—James's Pragmatism and Radical Empiricism—Schiller and Humanistic Logic—Truth and survival value—Brief account of Dewey's approach to thinking—Logic and 'verifiability.'

5. The rise of modern Logical Positivism and Logical Empiricism —Brief account of the Vienna Circle, Wittgenstein, A. J. Ayer—The method of Analysis—Brief discussion of the Verification Principle, Protocol Statements and Tautologies—'Sense' and 'Non-sense'—Treatment of aesthetic, ethical, religious and metaphysical statements.

6. The rise of modern Existentialism—Kierkagaard and his opposition to Hegel.—Brief account of modern Existentialism (Sartre, Heidegger, Jaspers and Marcel).

References :—

1. *Contemporary British Philosophy, 3 Vols.
2. *Contemporary American Philosophy, 2 Vols.
3. †R. B. Perry : Philosophy of the Recent Past.
4. †R. Metz: Hundred Years of British Philosophy.
5. †A. K. Rogers : English and American Philosophy since 1800.
6. †H. W. Dresser : History of Modern Philosophy.
7. † H. Haldar : Neo-Hegalianism.
8. †W. E. Hocking : Types of Philosophy.
9. D. Runes (Ed.): Twentieth Century Philosophy.
10. † J. E. Leighton : The Field of Philosophy.
11. *P. A. Schlipp (Ed.) Library of Living Authors : The Philosophy of John Dewey, The Philosophy of Bertrand Russell.
12. † L. A. Reid : Knowledge and Truth.
13. *S. Z. Hasan : Realism.
14. † D. M. Datta : The Chief Currents of Modern Philosophy.

15. A. J. Ayer and others : The Revolution in Philosophy.
16. J. O. Urmson : Philosophical Analysis—Its Development between Two Wars.
17. E. Mounier : Existentialist Philosophies.
18. F. Copelston : Contemporary Philosophy.
19. Paul Edwards and Arthur Pap. (Eds): (For consultation only): A Modern Introduction to Philosophy (Reading from classical and contemporary sources).
20. J. J. Passmore: A Hundred Years of Philosophy (1957).

[Only the relevant portions need be read. The treatment of the subject is expected to be based mainly on D. M. Dattars: The Chief Currents of Contemporary Thought, Chapter I, Sections 2, 8-13; Chapter II, Sections 1, 2; Chapters IV and V; Chapter VI, Sections 1-5; Chapter VII, Sections I and 2; Chapter VIII, Section 2; Chapter X; and J. Passmove's A Hunderd Years of Philosophy, Chapter 9 (Moore and Russel), Chapter 16 (Logical Positivism) and Postscript (Existentialism)].

NOTE :—Books marked with * are for consultation only. In books marked with † only the relevant portions need be read.

6 (i). Indian Philosophical Classic

For the examinations of 1960 and 1961.

Mandukyopanishad with Gaudapada's Karika and Sankara's Commentary on the Karika.

6 (ii). Early Indian Philosophy

(Before the rise of the systems).

Syllabus will be prescribed later.

6 (iii). A School of Vedanta

(a) Advaita

(*A*) *History*—

I. Traces of Advaitic thought in the Rg. Veda, Mandalas I and X.

II. Development of Advaitic thought in—

(*a*) The Upanishads—mainly (1) Brhadaranyaka—Yajnavalkya's discourses; (2) Chandogya—discourses addressed to Svetaketu and Indra, also Sandilya,

Upakosala, Bhuma and Dahara Vidyas ; (3) Taittiriya ; (4) Kena ; and (5) Mandukya.

(*b*) Brahma-Sutras, esp. I-i, 1 to 9 ; II-i, 14 and II-iii, 50 ; III-ii, 3 and III-ii, 22.

(*c*) Bhagavad-Gita, esp. chapters ii, v, xiii and xviii.

(*d*) Vishnu Purana (chiefly monistic extracts considered in the Sri Bhasya) and Srimad Bhagavata (Skandhas x and xi).

III. First systematic formulation of Advaita doctrine in Gaudapada's Mandukyakarikas.

IV. Classical exposition of Advaita doctrine in Sankara's work :

(*a*) Bhasya on Brahma-Sutras—esp. reference to section II (*b*) and Sutra IV, iii, 14.

(*b*) Bhashya on Brhadaranyaka and Chandogya (select passages).

(*c*) Vivekacudamani, Atmabodha and Upadesa-Sahasri.

V. Rise of divergent views as expounded in the *Sidhantalesa sangraha*.

VI. Controversy with other systems—as in Madhusudana's *Advaita-Siddhi*.

(*B*) *Exposition*—

I. Relation to other Eastern systems (Buddhism, Sankhya, etc.) *Cf.* Brahma-Sutra, Sankara Bhasya, II. ii. affinities with Western systems (Idealism, Pantheism and Monism).

II. Theory of Knowledge—

(*a*) The Pramanas or means of knowledge—importance of sabda—Para and Apara Vidyas—nature of Jnana and its relation to Anthahkarana and vrtti—Theory of pratyaksha—intuition and inference (pratyaksha and paroksha).

(*b*) Truth and Reality and the doctrine of three kinds of Reality (sattatraya).

(*c*) Nature of Adhyasa and theory of error (anirvacaniyakhyati).

II. Metaphysic

(*a*) Nature of Brahman—proofs of his existence—categories of cause and substance—transcendence

(neti, neti) and immanence (antaryamitva)—saguna and nirguna vada.

(*b*) Nature of jivatman–pluarality of jivas–their respective avidya, karma and upadhi—nature and proof of the identity of Brahman and Atman—bimbapratibimba-vada and avacchedavada.

(*c*) Nature of prapanca—theory of abhinnanimittopadana —parinamavada and vivarta-vada—doctrine of maya ; its history and proof ; its relation to time, space and causality.

IV. Ethics—

(*a*) Nature of the highest good (purushartha)—mukti or complete freedom from maya or avidya—beyond good and evil—free from activity—positive aspects of Mukti —saccidananda—Jivanmukti and videhamukti.

(*b*) Means of realization (sadhana)—vidya the one means —value of such other means as karma samadamadi and upasana—call for divine grace.

(*c*) Advaita and social service (lokasangraha).

(d) The ideal and the real—metaphysical warrant for moral endeavour—problem of free-will—morality and religion.

(*C*) *Criticism—in the light of other systems, Eastern and Western—*

I. Criticism of Maya or mithyatva—charge of acosmism.

II. Criticism of anirvacyatva or transcendence—charges of agnosticism and mysticism.

III. Criticism of svaprakasatva or self-knowability—charge of subjectivism.

IV. Criticism of nirguna vada—charge of absolution.

V. Criticism of abheda vada—charge of abstract identity.

VI. Criticism of jivabrahmaikya—charge of atheism and solipsism.

VII. Criticism of jnanasadhana or the subordination of both bhakti and karma to jnana—charge of intellectualism.

VIII. Criticism of karmasumnyasa—charge of renunciation and quietism.

IX. Criticism of kaivalya as a goal—charge of moral stultification and pessimism.

X. Criticism of Atmavati—charge of egoism.

Courses of reading suggested.

Brhadaranyaka and Chandogya Upanishads with Sankara's commentaries (English translation—edited by V. C. Seshachari, Mylapore).

Bhagavad Gita with Sankara's commentary (English translation by A. Mahadeva Sastri, V. R. Sastrulu & Sons, Esplanade, Madras).

Gaudapada's Karikas on the Mandukyopanishad (English translation by M. N. Dvivedi).

Deussen: The System of the Vedanta.

Prabhu Dutt Shastri: The Doctrine of Maya.

S. Radhakrishnan: Indian Philosophy, Vol. II (the chapter on Advaita).

Sankara's Bhasya on Sutras, I, i, 1—4, with the Bhamati Catussutri (edited by Suryanarayana Sastri and Kunhan Raja, Adyar).

Sankara: Vivekacudamani.

T. M. P. Mahadevan : Philosophy of Advaita.

T. M. P. Mahadevan : Gaudapada—A study in Early Advaita.

Puragra Parampanth : Advaita Vedanta and Modern Physics.

6 (iii) (b). Syllabus in Visishtadvaita.

I. *History.*—

(i) Germs of Visishtadvaita in the Rg. Veda.
Development of Visishtadvatia in—

A. The Upanishads, especially Ghataka Srutis.

1. Brhadaranyaka (Maitreyi and Antaryam Brahmanas).
2. Chandogya VI, VII, VIII Adhyayas.
3. Taittiriya (Mahanarayana Upanishad).
4. Svetasvatara.
5. Katha.

B. Brahma Sutras and the Bhagavad Gita with the related works by Bodhayana, Tanka, Dramida, Yamuna and Ramanuja.

C. Vishnu Purana II, V, VI books.

(ii) Pancaratra. Systematization of worship in the Mahabharata. Vedanta Sutras—The development of the Bhagavata religion and its relation to Visishtadvaita.

(iii) Tamil Literature.—

(*a*) Growth of devotional literature, Sangam literature. The Alvars—Guruparampara, Nammalvar, the chief expounder.

(b) The rise of Sri Vaishnavism. The earliest formulation of the system by Yamunacarya.

(iv) The fusion of the divergent currents in the Sidhanta and its classical exposition by Ramanuja.

(v) The rise and growth of sub-systems.

(vi) Contributions of Vedanta Desika and Pillai Lokacarya to Visishtadvaita.

II. *Theory of knowledge.*—

(a) Pramanas or the means of knowledge—*Sabda, Anumana* and *Pratyaksha*—Correlation as opposed to contradiction—Importance of *Sabda*—The Mimamsaka doctrine justified—The equal validity of all Vedic texts—The relation of *Sabda to Aptavakya* and intuition.

(b) *Satkaryavada* or realism. The doctrine of Pancikarana (Brahma Sutras III—1-3). The Theory or immanent causality.

(c) Nature of error (*Yathartha-khyati*). The Theory of continuity of *Avasthas* as opposed to that of contradiction (*mithya*). The meaning of illusions and dreams in terms of ethical realism. Criticism of the doctrine of *Maya*.

III. *Metaphysics.*—

Conception of Visishtadvaita; nature of Brahman—Brahman as the immanent cause of cosmic evolution—Criticism of *Vivarta-vada*—The absolute as the self-differentiating unity and as personality—The docrine of *aprthaksiddha-visesana*. Samanadhikaranya—Criticism of the *Nirguna-vada*—The characteristics of Brahman—The theory of incarnation—*Brahman, Cit and Acit*; eternal but not external; *Cit* and *Acit* as the *Prakara* or mode of *Isvara*—Nature of *Acit*—Categories and characteristics—Meaning *Suddha Sattva* or *Aprakrta* and time.

IV. *Psychology*—

The nature of Jivatman as personality, persisting as a separate being in the four states of waking, dream, sleep and release—Its distinquishing qualities—cognition, conation and feeling (*jnatrtvam, karrtvam,* and *bhoktrtvam*)—The distinction between substantive intelligence (*dharma-*

bhutajnana) and attributive intelligence (*dharmabhutajnana*).

The Jiva as *Anu* or monadic as distinct from Isvara who is *Vibhu*. The three classes of souls.

V. *Ethics*—

(*a*) The moral freedom of the finite self as a distinct personality and not a mere *viseshana*—Criticism of the Mimamsaka doctrine of the Vedic imperative—Moral freedom and divine necessity reconciled.

(*b*) Isvara as Narayana—Niyanta or moral ruler of the universe. The doctrine of karma—Transcendental immanence, criticism of *bhedabhedha vada*—Karma yoga as worship of God without desire for fruits—Service as the supreme good.

(*c*) Isvara as Narayana and Sri—The doctrine of redemption and grace—*karma* and *krpa* reconciled.

VI. *Religion.*—

(*a*) The doctrine of *Sariri-Sariri-Sambandha*—Logical immanence and ethical transcendence, reconciled in the idea of Jiva as a body of Isvara—The aesthetic idea of God as *Anandamaya*.

(*b*) Requisite of *Mumuksutva*—Progressive spiritual discipline in *Karma yoga*, *Jnana yoga*, *Bhakti yoga* and *Prapatti*—Karma and Jnana reconciled—The relative values of *Bhakti and Prapatti*—Alvars mystic yearning for God.

(*c*) Nature of *mukti* as the highest good or freedom from *avidya* as well as *papa*—Criticism of *Jivanmukti* and *Aikyavada*. The relative values of *kaivalya* and God-Realisation—*Dvaita* and *Advaita* (Theism and Pantheism) reconciled.

VII. Affinities with other philosophical systems, more especially with Prabhakara and Jaina Systems.

Courses of reading suggested.

Vedartha Sangraha.

Sri Bhasya, I (i), 1-4, (with Thibaut's Introductions and English Translation).

Gitabhashya.

The 6000 Padi of Nammalvar's Tiruvaimoli.

McNicol : Indian Theism.

Bhandarkar : Vaishnavism, Saivism, etc.

T. Rajagopalachariyar : Vaishnavite Saints.

S. Krishnaswami Ayyangar : History of South Indian Vaishnavism.

Rahastrayasara : Chapters 2 to 6.

Tattavatraya.

P. N. Srinivasachari : Ramanuja's Idea of the Finite Self.

P. N. Srinivasachari : Philosophy of Visishtadvaita.

M.R. Rajagopala Ayyangar : Vedanta Sangraha.

6 (iii) (c). Dvaita

(Will be prescribed later.)

6 (iv). Saiva Siddhanta.

I. History

A. Traces of Saivism in the Rig Veda, the Yajur Veda and the Atharva Veda. The ideas of Rudra-Pasupati and Stamba-worship.

B. 1. Development of Siddhantic thought or theism in

(a) The Upanishads, especially the Svetasvatara.

(b) Formulation of the system as indicated in the Bhashya on the Brahma Sutras by Nilakantha Sivacharya.

(c) Kashmir Saivism—the development of the Pratyabhijna system.

(d) Vira Saivism.

2. Ancient Tamil Literature.

(a) Traces of Saivite thought in the Tolkappiyam and Sangam literature.

(b) Devotional literature of the Samayacharyas and Nayanmars.

(c) Philosophical literature of the Santanacharyas.

C. Systematization of worship in the Agamas.

II. Theory of Knowledge

Pramanas—Sense-perception. Reasoning and Authority Para and apara vidyas. Theories of truth and error. (Prama and Bhrama)

III. Metaphysics

The three ultimate Realities : Pati, Pasu and Pasa Satkarya vada. The idea of causation. Criticism of other theories. Conception of God. Siva and Sakti. God as the efficient cause. Attributes of Siva and Sakti.

(a) Nature of Pati—Criticism or Nirguna vada. Divine motherhood and the redemptive principle of grace. Criticism of the doctrine of Avatara.

(b) Nature of Pasu—Saiva Siddhanta Psychology—Plurality of souls—characteristics of the soul—its relation to God—soul as sadasat—classification of souls-avasthas.

(c) Nature of Pasa—The three-fold character—anava, maya and karma—the thirty-six tattvas and their relation to the soul.

(d) Elements of realism and idealism in the Siddhanta.

IV. Ethics and Religion

(a) The highest purushartha : Mukti or redemption.

(b) Means of attaining salvation (carya, kriya, yoga, Jnana diksha).

(c) The meaning of moral and spiritual endeavour, karma and redemption.

(d) The nature of mukti—Atma darsana and Siva darsana. Comparison with the concept of mukti in other darsanas.

Courses of Reading suggested

Sivajnana Bodham with the Bhashya of Sivajnana Swamigal.

Sivajnana Siddhiyar—The works of Umapati Sivacharya.

Jnanamrtam—Siddhanta Saravali.

Srikantha's Bhasya on the Vedanta Sutras with Appayya Dikshitar's Sivarkamani Dipika.

Tevaram, Tiruvacagam. Tirumandiram.

Sivatattva Vivekam.

Kashmir Saivism : Abhinava Gupta's works.

Kashmir Saivism : Books on the subject written by (i) Chatterjee (ii) Leidecker.

Woodroffe : Sakti and Sakta,

Suryanarayana Sastri ; Sivadvita of Sri Kantha,

Suryanarayana Sastri : His article in Cultural Heritage of India Volume.

Nilakanta Sastri : Article in the Cultural Heritage of India Volume.

V. Paranjoti : Saiva Siddhanta.

John Piet : A Logical presentation of Saiva Siddhanta.

C. Hayavadana Rao (Ed.) : Srikara Bhashya.

C. V. Narayana Iyer : Saivism in South India.

Article in 'A History of Philosophy—Eastern and Western' the Sections of Saivism in the Bharatiya Vidya Bhavan Volume.

6 (v) Nyaya-Vaiseshika.

Books for General Reading :

1. Sadananda Bhaduri : Studies in Nyaya-Vaiseshika Metaphysics. (Bhandarkar Oriental Institute, Poona).
2. Satis Chandar Chatterjea : The Nyaya Theory of Knowledge.
3. S. Kuppuswami Sastri : A Primer of Indian Logic.
4. Ganganath Jha : The Tarkabhasha (Oriental Book Agency, Poona).
5. A. B. Keith : Indian Logic and Atomism.
6. Chatterjea : Hindu Realism.
7. Cowell and Gough : Sarvadarsan Sangraha—Ch. X.
8. S. Radhakrishnan : Indian Philosophy, Vol. II, Chs. 2 and 4.
9. Vidyabhushan : History of Indian Logic.
10. Ingalls : Materials for a study of Navya Nyaya (Harward Oriental Series).

6 (vi). Sankhya-Yoga

Books for General Reading :

1. S. S. Suryanarayana Sastri : The Sankhya Karika of Isvara Krishna.
2. A. B. Keith : The Sankhya System.
3. Sarvadarsana Sangraha : Chaps. XIV and XV.
4. Garbe : Sankhya Pravachana Bhashya.
5. S. Radhakrishnan : Indian Philosophy, Vol. II, Chs. IV and V.
6. Das Gupta : Yoga as Philosophy and Religion.
7. Woods : The Yoga System of Patanjali. (H.O. S. xvii.)

8. S. N. Das Gupta : Yoga Philosophy in relation to other systems of Indian Thought. (University of Calcutta, 1930.)
9. Akhilananda : Hindu Psychology.
10. Gerald and Coster : Yoga and Psycho-Analysis.
11. Bhagavan Das : Science of Emotions.

6 (vii). Buddhist Philosophy.

For General Reading :

1. S. Radhakrishnan : Dhammapada.
2. Benimadhab Barua : Prolegomena to a History of Buddhistic Philosophy. (Calcutta University, 1918).
3. Vidhusekhara Bhattacharya : The Basic Conception of Buddhism.
4. Manmathanath Dutt : Aspects of Mahayana Buddhism and its relation to Hinayana.
5. A. B. Keith : Buddhistic Philosophy in India and Ceylon (Oxford.)
7. T. R. V. Murthi : The Central Philosophy of Buddhism.
8. Beatrice Lane Suzuki : Mahayana Buddhism.
9. Beatrice Lane Suzuki : Philosophy of Yogachara.
10. Junjiri Takakusu : Essentials of Buddhistic Philosophy.
11. C. H. S. Ward : Buddhism, Vol. I, Hinayana.
11. C. H. S. Ward : Buddhism, Vol. II, Malyayana.

(Great Religions of the East Series, London: The Epworth Press.)

6 (viii). Jaina Philosophy.

For General Reading :

1. Barodia: Outlines of Jainism.
2. Mohan Lal Mahta : Outlines of Jaina Philosophy.
3. Do. : Jaina Psychology.
4. Nathmal Tatia : Studies in Jaina Philosophy. (Banaras : Jain Research Society, 1951.)
5. Umaswami : Tathvarthadhigama—Sutra with English translation. The Central Jaina Publishing House, Arrah).
6. Siddhasena Divakara : Nyayavatara Translation (Indian Research Society, Calcutta.)

7. A. Chakravarti : Nilakesi.
8. Zimmer : Philosophies of India. Chapter on Jainism.

7 (i). Prescribed Philosophical Work.
(For the 1960 and 1961 Examinations.)

Bertrand Russell : Human Society in Ethics and Politics.

7 (ii). Greek Philosophy.

I. *The Beginnings of Philosophy* :—

Introduction. Sketch of the Ionian School.

(1) Phythagoras : Theory of the Principles of the finite and the infinite and of rebirth.

(2) Heraclitus : Intelligence, Being and Becoming—Perpetual flux. The kinds of knowledge—Principle of contradiction—Religious and ethical views.

(3) The Eleatics : Nature of the Ultimate Reality : Materialism or Idealism—Parmenides and the Problem of Being. Zeno's dialectics against change, space and movement.

(4) Minor Ionians : Immutability and Plurality and their reconciliation. Empedocles : The course of the Cosmos ; Love and Hatred ; Transmigration—Anaxagoras : Theory of the Nous. (spirit).

(5) The Atomists : Leucippus and Democritus ; Materialism; Casuistry; Degrees of knowledge and partial subjectivity of the latter.

(6) The Sophists : Protagoras and Gorgias; Subjectivism.

(7) Socrates and the Socratic Schools : Socrates : Ethics, virtue and philosophy ; the rational dialectic method. The Magaric, Cyrenaic and Cynic Schools and their representative sophistry, scepticism and contempt of civilisation.

II. *Systematisation of Philosophy* :—

(8) Plato : General character of his life and work—The foundations of Platonic philosophy—The method of exposition in the Dialogues.

(a) His Theory of Knowledge—the senses and appearances—intellectual knowledge and reality—ideas in themselves—in relation to the world—their causality—Reminiscence—The Dialectics.

(b) His Doctrine of the World.

(c) Plato's account of the Absolute—The idea of God and Demi-urge.

(d) Man : the soul and its divisions—Arguments in favour of immortality—Transmigration of souls.

(e) Ethics—personal and social.

(f) Views on Art.

(g) Critical estimate.

(9) Aristotle : General character of Aristotle's life and work. (a) His logic (b) Philosophy of Nature.

Metaphysics : The solution of the Antimony of unity and multiplicity; (c) the act and potence; the form and matter; the four causes, the nature and categories of Being; the unmoved Mover.

Man : (d) the two principles of man ; (e) formation of ideas,

Psychology : the active and passive intellect.

Ethics : (f) Personal : the Eudaemonism of Aristotle—Social : the right of Private Property—the City State. (g) Critical estimate of Aristotle's philosophy.

(10) The Stoics, Epicureans and the Sceptics Outline: of their systems.

(11) Philo : His intuition of the transcendent God—The Intermediaries : The Logos.

(12) Plotinus : The one supreme eternal beyond the multiplicity—the processions—The Nous (Spirit), the World-Soul—relations between the individual souls and the World-Soul, the Matter-pseudo union of souls with matter—the return through contemplation—the ultimate Extasis—possible influence of oriental mysticism.

Bibliography.

1. Burnett : Greek Philosophy (Blackwell).
2. Zeller : Outlines of the History of Greek Philosophy (Longmans).
3. F. Coppleton : A History of Philosophy, Vol. I (Burn & Oats).
4. R. W. Livingstone : Portrait of Socrates.
5. A. E. Taylor : Plato, the Man, his Work. (Methuen).
6. A. E. Taylor : Platonism and its influence. (Harrap).

7. Jowett, B.: Plato's Works. 5 Vols. (For reference only.)
8. W. Jaeger : Aristotle. (O.U.P.)
9. W. D. Ross : Aristotle. (Methuen).
10. A. E. Taylor : Aristotle. (Nelson).
11. A. E. Taylor : Select Works of Plotinums. (G. Bell).
12. W. R. Inge : The Philosophy of Plotinums, 2 Vols. (Longmans).
13. Th. Gomperz : Greek Thinkers, 4 Vols. (J. Murray) (For reference only.)

7 (iii). Scholastic Philosophy.

Introduction : Historical sketch of Patristics and Mediaeval Philosophy

I. *Knowledge* :—(Epistemology) Critique of the cognitive act. Scepticism, Descatres' Doubt, Dogmatism. Kantian criticism : Idealism, Louvain School. The Goal of knowledge : Truth in relation to Relativism, Pragmatism and Fideism—existence and criteria of objective and absolute truth ; Error and its nature, causes, degrees, Certitude and Belief. The Instruments of knowledge : Ideas and the problem of the Universals; Judgments as synthetic a priori and a posteriori, analytical etc., Reasoning as Deduction. Induction : nature division, methods, validity ; Hypothesis. Methodology : Principle general and special according to the various sciences.

II. *Being* :—(Metaphysics, Ontology). The general concept of Being and the Problem of Analogy. Participation, Act and Potency. The properties of Being : Unity, Truth, Beauty (theory of Aesthetics), Goodness in relation to the theory of values and of evil. The Categories of Being : Substance (Phenominism and Personality), Accident of Quantity and Quality (fields of Science and Philosophy). Relations : the Finite and the Absolute. The Activity of Being and the realm of four-fold casuality, the problem of Efficiency.

III. *Material Universe* :—(Cosmology) The nature of inorganic bodies : Scientific modern views on the structure and activity of matter· Philosophical theories. Atomism Dynamism, Mechanism, Hylemorphism. Properties of Matter : Extension and the problem of continuum, the essence quantity, Space : philosophical theories, old and new geometries, Motion and Time. The Laws of Matter: Determinism and the miracles.

IV. *Man* :—(a) Human Nature. Philosophical Psychology Life. its psycho-chemical substratum and philosophical immanence ; Abiogenesis. Emergentism and panpsychism. Sensation as appetitive and cognitive : external senses and the problem of primary and secondary

qualities ; internal senses and the nature of memory and instinct—Intelligence : its non-material object and the formation of ideas (intentionality, abstraction) in relation to Empiricism, Dualistic Parallelism, Intuitionalism, Ontologism. The Will : its rational nature and the Problem of Liberty. The Soul : in itself (substantial nature, spiritual, immortal) in its relation to the body : the Problem of transmigration, Mind-body theories. Man : basic nature, development, destiny according to scholasticism.

(b) Human Conduct : (Ethics) General Principles Human and moral acts defined, the norm of morality, its manifestation in the natural law or Conscience, sin and sanction ; the juridical and moral order : rights and duties. Social Ethics : Individual (duties to God and self, veracity, suicide and mutilation ; Social: man a social being ; meaning of society ; Family : origin and nature of matrimony, duties and rights of parents (education) ; the State : origin and extent of sovereignty ; rights ana duties. Ethical Social Economics : the Social question, the right of property and mutual relations.

V. *God* :—(Theodicy) Relation of Natural Theology to other sciences. The nature and universal fact of religion. The Existence of God : valid and invalid proofs. Agnosticism and Atheism. The nature and attributes of God, His Will and Intelligence. God and the Universe : Creation, Conservation, Concurrence, Providence and the problem of evil. Religion and man's destiny and perfection.

Bibliography.

1. E. Gilson : Spirit of Mediaeval Philosophy. (Sheed & Wards Lond.).
2. F. Coppleston : A History of Philosophy, Vol. II. (Burn, Oats.)
3. P. Coffey : Science of Logic, Vol. II. (Longmans).
4. F. Steenberghen : Epistemology. (Heder).
5. F. Steenberghen : Ontology. (Heder).
6. E. Gilson : Being and Some Philosophers. Mediaeval Institute, Toronto.
7. J. Maritain : A Preface to Metaphysics. (Sheed & Ward).
8. D. Nys : Cosmology, 2 Vols. (Bruce, Milwauke, U.S.A.).
9. N. Bittle : Cosmology (Bruce, Milwauke, U.S.A.).
10. J. Maritain : Degrees of Knowledge. (Bles, London).
11. J. Mouroux : The Meaning of Man (Sheed & Ward, London).
12. H. Renard : Philosophy of Morality. (Bruce, Milwuake, U.S.A.).

13. J. Messner : Social Ethics. (Bruce, Milwauke, U.S.A.).
14. E. Cahill : Frame work of a Christian State (Gill, London).
15. R. Garrigou-Lagrange : God. (Herder, London).
16. F. Sheen : God and Intelligence. (Longmans, London).
17. F. Sheen : Religion without God. (Longmans, London).
18. C. D'Arcy : The Pain of this World. (Longmans, London).
19. I. Kolgrovivov : God, Man and the Universe. (St. Joseph's College, Bangalore).
20. Cardinal Mercier : Manual of Modern Scholastic Philosophy (Kegan Paul, London).
21. Nuttin : Psychoanalysis and Personality. (Sheed & Ward, London).

7 (iv). The Philosophy of Kant.

1. Antecedents of Kant's Philosophy. The influence of Leibniz Hume and Newton on Kant. Continental Rationalism—Pre-critical and critical periods in Kant's writings.

2. The Critique of Pure Reason. Its principal divisions. The transcendental or critical method and its scope. Kant's use of the term 'Pure Reason.' Space and time as *a priori* forms of intuition or sense. The meaning of the Kantian *category*. The transcendental (subjective and objective) deduction of the categories. Synthetic unity of apperception. The Analytic of Principles. Detailed discussion of the first two Analogies. The 'Refutation of Idealism.' The distinction between the phenomenal and the noumenal. The scope of the Transcendental Dialectic. The alleged sceptical and idealistic tendencies in the Dialectic. The paralogisma of rational psychology, antinomies of rational cosmology and the arguments for the existence of God. Transition to the Second Critique. Relation of 'reason' to 'faith.'

3. The Critique of Practical Reason : Its Analytic and Dialectic. The three formulations of the Moral Principle : as a Categorical Imperative as a Principle of human dignity and as principle of self-legislation. Hypothetical and Categorical Imperatives. Motive and consequences. 'Person' and 'thing.' The alleged formalism, rigourism and stringency of Kantian ethics. The Postulates of Morality : Freedom, Immortality and God. Alleged inconsistency and insufficiency of the Postulates.

4. The Critique of Judgment and its problems: The aesthetic judgment and its antinomy. The Teleological judgment and its antinomy. Kant's hypothetical reconciliation of teleology and mechanism and its value.

5. Brief discussion of Kant's influence on later European philosophy : Neo-Kantianism, Immanentism and Empiric-criticism. The Marburg School. Nineteenth century agnosticism. Scientific phenomenalism and scepticism.

References :—

1. Kant's Critique of Pure Reason (Translated by Kemp Smith).
2. Kant's Theory of Ethics—Abbot's translation.
3. Norman Kemp Smith : Commentary of Kant's Critique of Pure Reason.
4. H. J. Paton : Kant's Metaphysics of Experience. (2 vols.)
5. A. D. Lindsay : Kant. (Leaders of Philosophy Series).
6. J. Ward : A Study of Kant.
7. Bowers (Ed.) The Heritage of Kant. (A collection of articles).
8. H. W. Dresser : History of Modern Philosophy.
9. R. Falkenberg : Modern Philosophy.
10. J. E. Erdmann : History of Philosophy (Vol. 2).
11. Thilly : History of Philosophy (revised edition).
12. C. D. Broad : Five Types of Ethical Theory : Chapter on Kant.

7 (v). The Philosophy of Hegel.

1. Antecedents of Hegel's Philosophy. Fichte's and Schelling's transformation of Kant's Critical Idealism into and Absolute Idealism. Hegel's relation to Fichte and Schelling. General discussion of the scope of Hegel's Logic, Philosophy of Nature, Phenomenology and Philosophy of Mind (Geist).

2. Hegel's criticism of Kant's distinction between 'phenomena' and 'noumena,' between 'Understanding' (Verstend) and 'Reason" (Vernunft). Hegel's identification of logic with metaphysics. 'Finite and 'Infinite.' The purious and the genuine Infinity. A careful exposition of Hegel's dialectic method. Types of categories : Being (Sein), Essence (Wessen) and Notion or Concept (Begriff). The significance of Hegel's dictum. "The Real is the Rational". Alleged intellectualism and minism of Hegel.

3. Brief discussion of Hegel's Philosophy of Nature. Does he "deduce" Nature?

4. Dialectical stages in the development of Mind : Subjective, Objective and Absolute Mind. Exposition of Hegel's philosophy of Objective Mind. Right (Recht), Morality (moralitat) and Social ethics (Sittlichkeit). Critical examination of Hegel's treatment of property, punishment and family. Civil Society and the State. Hegel's Philosophy of History. Aesthetics, Religion and Philosophy as moments of the Absolute Mind.

5. Brief discussion of Hegel's influence on later European thought. British and American Absolute Idealism.

References :—

1. Hegel's Logic and Phenomenology of Mind (**Wallace's** translation.)
2. W. T. Stace : The Philosophy of Hegel.
3. H. S. Macrean : Hegel's Doctrine of Formal Logic.
4. J. M. E. McTaggarts : Studies in Hegelian Cosmology.
5. B. Croce : What is living and what is dead in the Philosophy of Hegel.
6. G. R. G. Mure : Introduction to the Study of Hegel.
7. G. R. G. Mure : A Study of Hegel's Logic.
8. H. W. Dresser : Modern Philosophy.
9. H. Haldar : Neo-Hegalianism.
10. H. A. Reyburn : The Ethical Theory of Hegel.

7 (vi). Islamic Philosophy.

Syllabus will be prescribed later.

7 (vii). Chinese and Japanese Philosophy.

Syllabus will be prescribed later.

8 (i). Philosophy of Science.

1. Characteristics of Scientific knowledge. Classification of the sciences. Definition and scope of philosophy. Philosophic problems that arise in connection with the assumptions and inter-relations of the sciences. Hegel's metaphysical categories and science. Bergson's intuitive approach to the scientific problems. Bertrand Russell on Logic as the essence of philosophy. Modern analysis of inguage and science.

2. The rOle of the hypothetico-deductive and inductive methods in Science. Brief discussion of the alternative interpretations of 'probability'. The Laplacian notion of 'equally likely events'; probability as a degree of belief and data (Keyns and Jeffreys); probability as frequency of occurrence (Von Mises Reichenbach); probability as range (Kneale); probability as underfined element in an axiomayic system (Kolmogrov and Cramer); Von Wright and Cranap on probability.

3. Philosophy of Physical Science: Measurement and the scope of Bridgeman's operational definitions. The transition from pereived space and time to mathematically describable space and time. Zeno's paradoxes about conceptual space and time and the modern resolutions of them. Relational and absolute theories of space and time (Leibniz and Newton). Impact of Relativity on the theories of space and time. Quantum Physics and the difficulties about Causality.

4. Philosophy of Biology : The principal characteristics of living beings. Brief discussion of Mechanism (dogmatic and methodological). Vitalism (substantive, energistic and methodological) Organic Holism and Emergentism. Is biological language 'reducible'?

5. Philosophy of Psychology: Scope of Interospection and Experiment in Psychology. Mental measurement and its philosophic status. The rival theories of mind and body. On calculating machines and their limitations. The problem of human freedom.

6. The Philosophy of Social Sciences: Sociology as a special discipline (Simmel, Vierkandy, Max Weber) and as a general discipline (Durkheim and Hobhouse Experiment and theory in the Social Sciences. Relation of the Social Sciences to the normative philosphical discipline of Ethics. On the concepts of *Culture* and *Civilisation*. Are mathematics and science 'culture-traits'? Limits of scientific knowledge. Possible bearing of Indian philosophical psychology on the problem.

References :

Where Chapters in a book are indicated, the exposition will be confined to them.

General.

1. G. Watts Cunningham : Problems of Philosophy.
2. P. J. Chaudhury : The Philosophy of Science (Progressive Publishers, College Street, Calcutta).

3. J. Needham : (Ed). Science, Religion and Reality (Relevant) chapters by Needham, Eddington and Brown)

4. B. Bavink : The Anatomy of Modern Science. (Eng. Tr. Part I, Chs. 16 and 17, Part III, Ch. 5, Part IV, Ch. 3.

Induction and Probability.

5. Bertrand Russell : Human Knowledge, Its Scope and Limits, Parts 5 and 6.

6. G. H. Von Wright: A Treatise on Induction and Probability, Ch. 7.

7. W. Kneale : Probability and Induction, Part III.

8. H. Jeffreys : Theory of Probability (2nd Ed. Ch. I).

9. H. Gramer : Mathematical Methods of Statistics, Ch. 13, Section 5.

10. R. Carnap : Logical Foundations of Probability, Chs. 1 and 2.

Philosophy of Physical Science.

11. A. S. Eddington : The Philosophy of Physical Science, Chs. 1 and 2.

12. V. F. Lenzen : The Nature of Physical Theory, Chs. 1, 2 and 3.

13. A. C. Benjamin : Introduction to the Philosophy of Science, Ch. 14.

14. E. H. Hutten : The Language of Modern Physics, Chs. 1, 2, 5 and 6.

15. S. Toulmin : The Philosophy of Science. (Hutchinson's University Library).

16. H. Margenau : The Nature of Physical Reality, Chs. 2, 7 and 12.

17. E. Whittaker : From Euclid to Eddington.

18. H. Weyl : Philosophy of Mathematical and Natural Science, Part II.

19. E. Schrodinger : Science and the Human Temperament.

20. W. Heisenberg : Philosophic Problems of Neuclear Science.

21. Bertrand Russell : Our Knowledge of the External World, Chs. 5, 6, 7 and 8.

22. L. Silberstein : Causality.

Philosophy of Biology.

23. J. A. Thomson : The System of Animate Nature (Gifford. Lectures), Vol. I.
24. Lectures 3, 5, 7.
25. J. S. Haldane : Mechanism, Life and Personality.
26. H. Driesch : The History and Theory of Vitalism, Part I. (Part I for consultation only).
27. E. S. Russell : The Interpretation of Development and Heredity, Chs. 9 and 10.
28. E. Rignano : The Nature of Life, Part II, Chs. 10 and 11 (Part I for consultation only).
29. C. D. Broad : Mind and Its Place in Nature, Ch. 2.
30. J. C. Smuts : Holism and Evolution, Chs. 7 and 9.
31. J. H. Woodger : Biology and Language, Part III.
32. L. Hogben : The Nature of Living Matter.

Philosophy of Psychology.

33. H. Brand, Compiler : The Study of Personality (A Book of Reading).
34. R. W. Sellars : The Principles and Problems of Philosophy, Chs. 19, 20, 21.
35. C. D. Broad : Mind and Its Place in Nature, Ch. 14.
36. C. Burt : The Factors of the Mind, Ch. 7.
37. J. R. Smythies : The Analysis of Perception.
38. J. C. Eccles : The Neurophysiological Basis of Mind, Ch. 8.
39. F. H. Allport : Theories of Perception and the Concept of Structure, Ch. 18 (on cybernetics).

Philosophy of the Social Sciences.

40. F. Kaufmann : The Methodology of Social Science.
41. M. Ginsberg : Sociology (Home University Library), Chs. 1. 2, 7.

The following Journals may be consulted :

1. The British Journal for the Philosophy of Science. (Published by Thomas Nelson & Sons.)
2. Philosophy of Science, Baltimore, U.S.A.
3. The Philosophical Quarterly, Amalner, India.
   Proceedings of the Indian Philosophical Congress.

8 (ii). Philosophy of History.

1. Scope of the subject. Difference between History of Philosophy and Philosophy of History.

2. The Hindu Theory of Cycles Attitudes to History and Time in the orthodox and heterodox systems of India.

3. Conception of History in Mediaeval European Philosophy Augustin's ' City of God '. Renaissance and the transition to Modern Period. Ranke, Carlyle, Michelet, Comte, Buckle, Froude, Droysen.

4. Hegel's Philosophy of History. Dialectic Method. Application to the phases of human culture. Troletch's criticism of Hegel (See Hilda Oakeley and C. C. J. Webb.)

5. Marxist view of history.

6. Spengler's view of history. Chinese, Indian, Egyptian, Greek, Magian (Arabic or Senetic) and the Faustian cultures. Civilisation as senescence of culture.

7. Idealist interpretation of History since Hegel : T. H. Green-Bosanquet. Croce's Neo-Idealism and the ' historio-graphic method '.

8. The concepts of culture and civilisation. Modern sociological definitions. Karl Manheim, McIver and Weber on Culture. The Concept of Progress in relation to the Philosophy of History. Toynbes on history.

9. Review of the theories of Time. (Idealistic, Realistic and Pragmatic) in relation to History. Criticism of the notion of Plan or Design in history and appraisal of it. (Isaiah Berlin).

References :

General :

1. G.W. F. Hegel : Philosophy of History.
2. H. D. Oakeley : A Study in the Philosophy of Personality.
3. B. Croce : Theory of History and Historiography.
4. K. Kautsky : Ethics and the Materialistic Conception of History.
5. O. Spengler : The Decline of the West, 2 Vols.
6. A. J. Toynbee : A Study of History. (Abridged edition, 3 Vols. by D. C. Somerwell.)
7. Isaiah Berlin : Historic Inevitability.

Consultation :

1. A. W. Green : Sociology.
2. McIver : The Modern State.
3. M. Ginsberg : Sociology.
4. J. A. Froude : The Science of History.
5. J. B. Bury : Inaugural Lectures on History.
6. J. H. Robinson : The New History.
7. M. M. Chatterjee : History as a Science.
8. J. A. Gunn : The Problem of Time.
9. T. M. P. Mahadevan : Time and the Timeless.
10. C. C. J. Webb : Science, Religion and Reality. (Ed. J. Needham).

8 (iii). Philosophy of Religion.

1. *Introduction*:—Nature and Scope. Method, Historical and Philosophical.

2. *Origin and Development of Religion* : (*a*) Animism, Totenism, Fetichism, Magic and Taboo. (*b*) Tribal, National and Universal.

3. *The Psychology of Religion* : (a) The psychological basis of religion. (*b*) Attitude to religion : Intellectual, moral and emotional.

4. *Devotion and Mystic Experience* : Treatment in the Narada, Bhakti Sutras. Illustrations from the lives of representative mystic

5. *The Logic and Epistemology of Religion* : (a) The authority of religion. Revelation, Reason and Intuition. (b) Proofs for the existence of God. The Nyaya proofs.

6. *The Metaphysics of Religion* : (a) The nature of Reality, the personality of God, God and the Absolute. (b) the attributes of God. The eternal values. (c) Immanence and transcendence. (d) The problem of Evil.

7. *The goal of religion—its means* : (a) God-realisation, Perfection, Immortality and Moksha, (b) Prayer, Devotion, Grace, Karma, Bhakti, Jnana. Treatment of the goal and the means in the Bhagavat Gita, in the Christian Gospel and in the Holy Quoran. The various approaches (bhavas) to the Divine.

References :—

1. G. Galloway : The Philosophy of Religion.
2. J. B. Pratt : Religions Consciousness.
3. A. A. Bowman : Studies on the Philosophy of Religion (2 vols.), 1938.
4. *J. G. Frazer : The Golden Boygh (Abridged Edition).
5. *J. H. Leuba : A Psychological Study of Religion.
6. *H. Bergson : Two Sources of Morality and Religion.
7. *S. Radhakrishnan : Eastern Religions and Western Thought.
8. *Iqbal : Philosophy of Islam.
9. *William James : Varieties of Religion Experience.
10. *Schmidt : The Origin and Growth of Religion.
11. *P. N. Srinivasachari : Mystics and Mysticism.
12. Swami Vivekananda on Bhakti Yoga.

Note.—Books marked with * are intended for consultation only.

8 (iv) Philosophy of Aesthetics.

1. Scope. Its relation to other normative disciplines.

2. The Psychology of Aesthetics. Factors in the communication and expression of beauty. Aesthetic measures. The unconscious and the aesthetic. Empathy (EINFUHLUNG) Psychical 'distances' in Art. Play and Art as relaxation and surplus energy.

3. Brief discussion of the principles of Prose, Poetry and Dramas Aristotle's Poetics. Katharsis as Purgation and as Purification. Unities of Time and Place in Drama. Brief review and appraisal of the principles involved. (Unity, design, etc.) In European painting and drawing, architecture and music.

4. Review of Aesthetics in India. Vastu, alankara and rasa. Concept of sahrdaya and hrdaya-samvada. Method of communication in Art. Dhvani, Anumana and Artthapatti. Brief discussion of the Prachina and Navina schools. Srngara as one of the rasas. Brief discussion of Indian sculpture, architecture and painting.

5. Review and criticism of the principal theories of value in relation to aesthetics. Naturalistic and Psycho-centric theories. Value as a unique quality. Subsistent or Objective. Value as Subject-Object determination. Idealistic theories. Kant's theory of the Beautiful and the Sublime. Croce's Theory of Art as the expression of Institu-

tions. Bosanquet on Beauty and Coherence. Modern Axiological theories.

6. Relation of Art to Religion. The theory that Art grows out of Religion (Durkheim). The theory that Religion grows out of the Aesthetic. (Collingwood), Analogics and differences between Art and Religion. Concept of Ananda in Indian Mysticism.

References :

N.B.—Books marked with an asterisk * are meant for consultatation only.

1. Earl of Listowell : A Critical History of Modern Aesthetics.
2. P. J. Choudhri : Aesthetics (Santiniketan University.)
3. Irwin Edman : Arts and the Man.
4. Pepita Haezerahi : The Contemplative Activity.
5. E. F. Caritt : The Theory of the Beautiful.
6. P. V. Kane : Article of Aesthetics in the History of Philosophy, Eastern and Western. (Government of India).
7. P. N. Srinivasachari : Philosophy of the Beautiful.
*8. A. Coomaraswamy : Transformation of Art in Nature.
9. Percy Brown : Indian Painting.
10. A. C. Garnett : Reality and Value.
11. N. O. Lossky and J. Marshall : Value and Existence.
*12. S. Alexander : Beauty and other Forms of Value.
*13. B. Croce : Aesthetics.
*14. D. W. Prall : Aesthetic Judgment.
*15. R. G. Collingwood : Outlines of the Philosophy of Art.
*16. B. Bosanquet : Three Essays on Aesthetics.
17. E. B. Havell : The Ideals of Indian Art.
*18. Kant : Critique of Judgment.
19. M. Hiriyanna : Art Experience.
*20. G. D. Birkhoff : Aesthetic Measure.
21. A. S. Woodburne : The Religious Attitude.
22. Sri Jaya Chamarajendra Wadiyar Bahadur Maharaja of Mysore : An Indian View of Aesthetics.

8 (v). Political Philosophy.

*1. The nature and scope of Political Philosophy—its relations to Politics, Ethics, Sociology and Social Psychology.

2. Rise and conditions of political speculation in the ancient Greek City States—the contribution of Plato and Aristotle—the disappearance of the City States and the ushering of Country State—the modern idea of World State and World Federation and other international ideals. The concept of Pancha Sila—U.N.O.

3. Theories of the Origin of the State : Theory of force, Divine right theory, Social contract theory (Hobbes, Locke and Rousseau) Organic theory of Bluntchli and Spencer, Idealistic Hegel, theory, (Green and Bosanquet). Pluralistic theory (Laski) and Evolutionary theory.

4. The Idea of Sovereignty : In Hobbes, Locke and Rousseau, Austinian theory of sovereignty, the Principle of national sovereignty in Hegel, Green and Bosanquet Pluralistic, Criticism of the principle of national sovereignty (Laski and others), the principle of national sovereignty as a hindrance to world peace; the views of Laski and Bosanquet.

5. The Purpose and End of the State : Aristotle's view, the Individualist's view, the Hegelian view, the Socialistic and the Marxian views, the views of Kautilya and Manu.

6. The Nature of Sphere of the State : Leissez faire doctrine and its criticism. Reasons for increased state activity; extent of states in road into the individual's sphere; the ideas of Theocratic State Secular State, Police State, Totalitarian State and Welfare State.

7. Theories of Liberty: The Realistic and the Idealistic conceptions; Liberty and Equality; Rights and Duties; Natural Rights and Fundamental Rights. The concept of Dharma as the sustaining Principle of a State.

8. Theories of Punishment.

9. Institutions as Ethical Ideas.

10. Forms of Government: Monarchy, Aristocracy, Oligarchy, Democracy, their philosophies, principles and criticisms—Essential requirements of a good Democracy.

11. Contemporary Political Theories and Political Ideas: Socialism, Communism, Syndicalism, Guild-Socialism, and Fascism.

12. The Political Philosophy of Mahatma Gandhi : The place of religion in politics; Satya and Ahimsa, Satyagragha as a political weapon.

References :—

1. Bosanquet : Philosophical Theory of the State.
2. Green : Principles of Political Obligation.
3. Laski : Grammar of Politics.
4. Mabbot : The State and the Citizen.
5. Cohen : The Principles of World Citizenship.
6. Hobhouse : Philosophical Theory of the State.
7. Joad : Modern Political Theory.
8. Maxey : Political Philosophers.
9. Catlin : Story of Political Philosophers.
10. Sabine : A History of Political Thought.
11. Kautilya : Artha Sastra.
12. Relevant portions from the writings and speeches of Mahatma Gandhi.
13. International Year-book.
14. P. S. Sivaswami Aiyar : Evolution of Hindu Moral Ideas (Kamala Lectures).

8 (vi). Comparative Religion.

N.B.—The purpose of the course in this subject is to make a purely objective study of the several religions from a comparative point of view. Where differences have to be pointed out in the treatment of the several topics, there is to be no attempt to assess their relative superiority. The emphasis to be laid more on the appreciation of affinities than on the criticism of differences.

1. Religion, Historical need of man—Primitive and Modern Religions—Animism, Totemism, Fetichism, Magic and Taboo—The origin of modern religions like Judaism, Christianity, Islam, Buddhism, Jainism and Zoroastrianism—Taoism and Confucianism—Hinduism which has no founder.

2. The History of the development of the founded religions—the course of Hinduism down the ages.

3. Methodology of Comparative religion : Philosophical (Hegel, Comte and Caird) ; Psychological (Leuba, Sleirmacher, James) ; Ethnological (Lubbock, Taylor) ; Historical (Schmidt) ; Philological (Max Muller) ; Contribution of Anthropology to Comparative study of religions.

4. The Scriptures of the great Religions—their authority—Nature of Revelation in the several religions—The Word of God or the Prophet—the doctrine of no authorship (apaurusheyatva) in respect of the Vedas—the validity of revelation—the meaning of Faith.

5. Religion and Philosophy—inter-relation between them—Theology and its significance.

6. The idea of God—Proofs for the existence of God and their examination—the concept of God according to the ancient tribal religions—God according to Christianity and Islam—God in the Vedas and in the upanishads—theories of God according to Advaita, visishtadvaita, Dvaita and Saiva Siddhanta—views of Buddhism and Jainism regarding God.

7. Metaphysical theories : Deism, Theism (Monotheism and Polytheism) and Pantheism. Transcendence and Immanence. The concept of Avatars or Incarnation.

8. Nature of Man according to Christianity, Islam and Indian religions—The anatma theory of Buddhism—The theories of the jiva in the different schools of Vedanta including Saiva Siddhanta—Cause of Man's finitude : the theories of 'Man's first disobedience', of anandi avidya, kama and karma, and the Saiva Siddhanta theory of malas.

9. Destiny of Man—theories fo salvation according to several religions : Heaven of Christianity and Islam—Nirvana of Buddhism, Videha mukti and Jivanmukti in Hinduism—the doctrine of Personal Immortality—the place of human effort and of divine grace in the attainment of salvation—Karma, Bhakti and Jnana—their differences—attempts to synthesise them—saranagati and prapatti—Redemption and Saviourship—the doctrine of Karma—the theory of vicarious atonement.

10. Religious Attitudes and Practices—The place of renunciation (sanyasa) in religious life according to all religions—Ritual and its purpose—its psychological, moral, religious and metaphysical significance—The meaning of Idol Worship in Hinduism—Reason for objection to it in Islam—Moral disciplines—Penance, Purgation and Purification—Devotion to God—Surrender, Sublimation and Samaroana (Dedication)—Saranagati and Prapatti—Prayer and its forms : petitioning for benefit, Thanksgiving, Penitence and asking for forgiveness, Glorification and Praise—Fasting and Pilgrimage and their purpose—the idea that Work is Worship.

11. Mysticism and Mystic Experience—Its meaning—Different forms of approach to God : Dasya, Putra, Vatsalya, Sakhya and Prema bhavas—The perfection of bridal mysticism or Nayaka-Nayaki bhava—The flight of the alone to the Alone—Illustrations from the lives of the mystics of all religions—Metaphysics of mysticism.

12. Sainthood—constant dwelling in God—Seeing God in all things and all things as God—Normative ethics becomes natural for the saint—the ideal of the Sthitaprajna, the man of perfect wisdom and conduct.

13. The Individual and the Social Aspects of Religions—the sacraments (samskaras) in a person's life from birth to death—their religious significance—Meaning of second birth in Christ, of dvijahood in Hinduism—The Asramas and their meaning for personal Religion—Religion and Social Service—the jivanmukta and lokasangraha—the concept of adhikaripurushas reincarnating in the world—Religious basis of social service—Distinction between the secular and the religious in several religions and the extent of their validity.

14. Treatment of Nature in different religions—theories of the creation of the world and of man according to Christianity and to Hinduism—Explanation of human inequalities.

15. The Hindu concept of svadharma in religion and of many paths of the same goal—The views of other religions on the subject.

16. General survey of the basic concepts of all religions.

Books for reference :

1. Max Muller : Natural Religion.
2. E. Hume : The World's Living Religions.
3. O. James : The Beginnings of Religion.
4. C. Bouquet : Comparative Religion.
5. W. Schmidt : Origin and Growth of Religion.
6. E. B. Taylor : Primitive Religion.
7. C. Bouquet : Sacred Books of the World.
8. H. Leuba : Psychology of Religion.
9. R. Otto : The Idea of the Holy.
10. Fraser : The Golden Bough (abridged edition).
11. S. Radhakrishnan : Eastern Religions and Western Thought.
12. Bergson : Two Sources of Morality and Religion.
13. William James : Varieties of Religious Experience.

14. Iqbal : Philosophy of Islam.
15. P. N. Srinivasachari : Mystics and Mysticism.
16. Swami Vivekananda : Bhakti yoga and Raja yoga.
17. Kenneth W. Morgan : The Basic Beliefs of Hinduism.
18. Floyd H. Ross and Tynette Hills : Question that Matter Most Asked by the World's Greatest Religions (Beacon Press, Boston, U.S.A.)

Branch VI—Psychology

History of Psychology

History of Psychology :

1. Philosophical Psychology: Contributions of Indian Philosophy. Body Mind problems in Ramanuja's system.

Yogic Discipline.

Epi-phenomenalism in Carvaka. Manas, Buddhi, Ahamkara (Vedanta) Perception and illusion in Naya Vaiseshika.

2. Contributions of Greek Philosophy: Epicurianism, Plato, Aristotle.
3. Scholastic Period:

   Thomas Acquinas.
4. Beginnings of Modern Psychology:
   Descartes, Leibniz, Locke, Mill, Hobbes, Spencer.
5. Beginnings of Experimental Approach:
   Weber, Fechner, Wundt, Ebbinghaus, Kulpe.
6. Schools of Psychology.
7. Influence of Statistical Methods.
8. Growth of Branches of Psychology.
9. Fields of Applied Psychology.
10. Impact of Anthropology and Sociology:
    Malinowski, Benedict, Kardiner, Margaret Mead, Fromm, Linton.

References : (Relevant portions in the following).

M. Hiriyanna : Outlines of Indian Philosophy.

Stace : A Critical History of Greek Philosophy.

Brett : A History of Psychology.

Flugel, J. C. : A Hundred Years of Psychology.
Murphy, G. : Historical Introduction to Modern Psychology.
Boring, E. G. : History of Experimental Psychology.
Woodworth, R. S. : Contemporary Schools of Psychology.
Heidbreder, E. : Seven Psychologies.
Guilford : Fields of Psychology.
Bartlet *et al* : A Study of Society.
Becker, H. J. Gillin, *et al*: For a science of social man.
Michael Maher : Psychology : Empirical and Rational.

Psychopathology

1. General Principles.
   Normal and Abnormal Behaviour.
2. Psycho-dynamics of Abnormal Behaviour.
   Contributions of Kraepelin and Janet.
   Modern concepts based on Freud, Jung and Adler.
3. Neurotic Personality and Psychopathic Personality.
4. Psycho-neuroses and Psychoses (Functional and Organic)—
   Etiology, Symptoms, etc.
   Mixed types.
5. Treatment Programme.
   Psychotherapy, Psychoanalysis, Psychiatric aids.
   Supplementary methods, Hypnosis.
6. Special Problems.
   Mental deficiency, Epilepsy.
7. Concept of Mental Hygiene.
   Home, School and College and Employment.
   Guidance and Counselling clinics.

Reference :

1. Modern Abnormal Psychology—Mikesell—Philosophy library symposium.
2. Interpretation of Dreams—Freud.
3. Modern Man in search of a soul—Jung.
4. Science of Living—Adler.
5. Text-book of Abnormal Psychology—D. B. Klein.

6. Text-book of Abnormal Psychology—Dorcus and Shaffer.
7. Modern Discoveries in Medical Psychology—Allen C.
8. An Introduction to Abnormal Psychology—Fisher.
9. An Outline of Abnormal Psychology—McDougall, W.
10. Therapy of neuroses and psychoses—Kraines.
11. Mental Hygiene—Carroll.
12. Psychoanalytic theories of Personality—Blum, G. S.

Social Psychology.

Origin and development of social psychology. Influence of anthropology and sociology. Present position and status. Social psychology at the cross-roads. The individual *vs.* the socio-cultural approach.

The 'levels' concept in the social organisation of animals.

The transformation of man in society. The problem of human interaction.

Is there a group mind?

Language in society and the individual. Semantics.

Methods of psychological investigation—statistics, sampling, interviewing, question and answer design, scaling, reliability and validity, observation, Research design.

Characteristic features of group behaviour—conformity, co-operation and competition.

Coacting, unperceived and organised groups.

Tradition, morale, belongingness, atmosphere, participation and group decision.

Gangs, clubs, crowds and mobs.

Leadership.

Fads, rumours and fashions as means of social change.

Propaganda and public opinion.

Social conflicts—strikes, wars, civil wars and revolutions.

In and out-group relationship. The nature, effects and manifestations of prejudice. Stereotype Ideologies.

Experimental studies of inter-group tension and changes of attitude. The concept of social distance.

Ways of resolving social conflict.

The individual in an unstable world. Social neurosis. Urbanisation. Individualism. Cultural marginality. Collective insecurity.

References:

1. Social Psychology—L. W. Doob, Henry Holt, N. Y., 1952.

2. Social Psychology—S. E. Asch, Prentice Hall, N. Y., 1952.

3. Social Psychology—H. Bonner, American Book Co., N.Y., 1953.

4. Social Psychology, at the Cross Roads : M. Sherif and J. H. Rohrer (Eds.) Harpers, N.Y., 1951.

5. Resolving Social Conflicts—Kurt. Lewin, Harpers, N. Y., 1948.

6. Experimental Social Psychology—Murphy and Newcomb, N. Y., 1957.

Psychometry

I. Properties and applications of Normal Probability Curve.

II. Classical and modern theories of Psycho-physics.

III. Psycho-physical methods :

1. Method of Average error.
2. Method of Minimal changes.
3. Constant methods.

IV. Scaling Methods :

1. Method of a spired comparison.
2. Method of rank order.
3. Method of successive categories and scaling from interval and ratio judgements.
4. Rating scales—their forms and evaluations.

V. Measurement of Personality.

1. Principles of preparing qustionnaires.
2. Analysis by method of breakdown.
3. Adjustment qustionnaires.
4. Measurement of interests and Attitudes.
5. Bogardus and Sociometric Tests.
6. Projective techniques.
7. Measurement of Public Opinion.

VI. Correlation Methods :

1. Rank Difference correlation.
2. Product-Moment correlation.
3. Partial and Multiple correlations.

VII. Theory of construction of psychological tests.

1. Construction and Standardisation of tests.
2. Reliability and validity measures.

VIII. Factor Analysis :

1. Spearman.
2. Thurstone.
3. Thompson.

Books for study :

Guilford, J. P. : Psychometric methods—Revised edition.

Freeman, F. S.: Theory and Practice of Psychological testing.

Symonds, P. M. : Diagnosis of Personality and conduct.

Cattell : Factorial Analysis—Harper & Bros.

Books for reference :

Mursell : Psychological testing.

Wechsler (S) : Measurement of Adult Intelligence.

Murray, H. A. and Others : Explorations in Personality.

Adcock: Factorial Analysis—Melbourne University Press, London.

Fruchter: Introduction to Factor Analysis—D. Vann Nostrand.

Experimental Psychology (Practicals) I

Psychophysics :

(*a*) *Determination of thresholds* :

Expt. using method of minimal changes or method of limits.
Expt. using method of average error.

Expt. using method of constant stimuli or frequency method.
Weber's law and threshold.

(*b*) *Scaling methods* :

Methods of fractionation, the method of bisection and method of equal appearing intervals.

Paired comparison and ranking methods.

Vision :

Light and dark adaptation.

Brightness discrimination.

Visual acuity.

Blind spot.

Perception of colour :

Colour constancy.

Colour contrast.

Colour vision, colour blindness.

Percepion of form :

Contour.

Experiments in illusions.

Figural after-effects.

Perception of space :

Binocular vision—Diplopia.

Stereoscopic vision—accommodation and convergence.

Accuracy of depth perception.

Size constancy.

Perception of movement :

Apparent movement—Stroboscopic effect.

After images of movement.

Autokinetic and induced movement.

Audition :

Auditory acuity—threshold of hearing.

Differential sensitivity to frequency.

Differential sensitivity to intensity.

Beats, different tones, summation tone and masking

Auditory fatigue.

Auditory space perception—Localisation of sound.

Cutaneous sense :

Threshold for pressure discrimination.

Threshold for punctuate distribution (Pain sense).

Two point threshold.

Chemical senses:

Taste identification.

Taste adaptation.

Absolute and differential threshold of smell.

Smell adaptation.

Perception of times :

Estimation of time intervals.

Production of time intervals.

Filled and unfilled time intervals.

Sense of rhythm.

Emotion :

Galvanic skin response (GSR).

Changes in blood pressure.

Lie inodetect (Polygraph).

Learning :

Instrumental conditioning—Avoidance conditioning.

Whole Vs part method.

Effect of success and failure.

Motivation of work-knowledge of results.

Massed Vs distributed practice.

Speed of learning for different amounts of materials.

Conceptual learning.

Transfer of learning—Temporal maze learning.

Habit interference.

Memory :

Recitation as a factor in learning.

Retention and meaning.

Retention and Repetition.

Interpolated learning—Retrospective inhibition.

Recall and recognition.

Reminiscence.

Retention for completed and interrupted tasks.

Effect of language on recall.

Effect of feeling on recall.

Memory change in serial reproduction.

Problem solving-thinking :

Process tracing experiments.

Images and Meaning.

Images and problems solving.

Utilisation of information—reasoning.

Problem solving in a group sitution.

Multiple choice problems.

Peterson's test of rational learning.

Book for study :

Woodworth and Scholoberg: Experimental Psychology, Revised edition, 1955.

Postman and Egan—Experimental Psychology—An Introduction.

Book and Experimental manuals for reference:

Stevens, S. S. : Handbook of Experimental Psychology.

Osgood : Meaning and Theory in Experimental Psychology.

Andrews, T. H. : Methods of Psychology.

Townsend : Introduction to method of Experimental Psychology.

Benton, J. W. Underwood : Experimental Psychology.

Mumn, N. L. : Laboratory Manual in General Experimental Psychology.

Scheideman: Experiments in General Psychology, Revised and enlarged.

Tinker: M. K.—Introduction to methods of Experimental Psychology.

Experimental Psychoolgy—Practicals II

I. *Test of Ability*:

Administration of Binet Scale and later adaptation.

Administration of Diagnostic test, Wechsler Scale, Child and Adult.

Administration of individual and group tests of intelligence, Group non-verbal tests.

Administration of Performance tests.

II. *Test of Special Abilities*:

Spatial and Perceptual tests.

Psycho-Motor tests.

Mechanical knowledge.

Artistic ability.

Sensory abilities.

III. *Prognostic Test* :

Aptitude tests.

IV. *Achievement Tests*:

Preparation and Administration of Achievement Tests in School and Employment Rating Tests.

V. *Tests of Interest*:

Guidance use of interest tests.

VI. *Tests in counselling and guidance.*

VII. *Aptitude tests and their technique*:

Attitude testing technique.

Opinion surveys.

VIII. *Tests of Personality*:

(*a*) Questionnaire tests and rating technique.

(*b*) Projective techniques.

Reference Books :

Cronbach, L. J.—Essentials of Psychological testing.

Freeman, F. S.—Theory and Practice of Psychological testing.

Cattell, R. B. A.—Guide to Mental Testing.

Thorndike and Hagen : Measurement and evaluation in Psychology and Education.

Anastesi, A.—Psychological testing.

Terman and Merrill—Measuring Intelligence.

Wechsler, D.—The Measurement of Adult Intelligence.

Mursell, J. L.—Psychological testing.

Vernon, P. E.—Personality tests and assessments.

Ferguson, L. N.—Measurement of Personality.

Modern Trends in Psychology

Child Psychology :

Psychological problems of pre-school children.

Newborn's repertoire—learned and unlearned.

Effect of illness during the infants' development.

Influence of special training during infancy on later development of children.

Adolescence :

Hypothesis of adolescent emotional instability—Physical and environmental—Psycho-analytical theories.

Psychology in Industry :

Incentives and their satisfactions—Obstacles to their satisfaction.

Job anxiety and human control—Fitting the man to the machine—Human engineering—Designing tools and machines to suit the workers—Human relations in industry.

Abnormal Psychology :

Application of psychoanalysis to art and culture—Diagrams of the unconscious—Studies in expressive movements—Schizophrenic art—The concept of self-actualisation or self-realisation—Frustration—Aggression and Frustration—Regression hypotheses.

Social Psychology :

Nature of prejudice—studies on prejudice in India.

Race, war and culture patterns.

War and aggressiveness.

Women in Peace and War.

Nationalism and Inter-nationalism.

Personality :

Contemporary theories of personality—Functional autonomy—Behaviouristic—Topological—Compensation theory of Adler—Hierarchical theories of Freud, McDougall and Maslow—Factorial study of personality—Physical types of Sheldon.

Experimental Psychology :

Recent Developments in Perception and Learning.

References : (Relevant portions in the following).

W. Dennis (1954) *Readings in Child Psychology*, New York, Prentice Hall.

Barker *et al Child behaviour and development*, 1943, McGraw Hill, N. Y.

H. C. Smith (1955) *Psychology of Industrial Behaviour*, McGraw Hill, N.Y.

H. Moine (1942) *Psychology for business and industry*, McGraw Hill, N.Y.

R. F. Tredgold (1949) *Human relations in Modern Industry* New York, International University Press.

W. Wolff (1948) *Diagrams of the Unconscious*, Grunes Stratten, N.Y.

M. Naumberh (1950) *Scgizophrenic Art : Its meaning in Psychotherapy*, Grunes Stratten, Inc.

Karen Horney (1951) *Neurosis and Human Growth*—Routledge & Kegan Paul, London.

A. H. Maslow (1953) *The Human Motivation.*

C. A. Mace and P. E. Vernon (1953) *Current trends in British Psychology*—Methuen & Co., Ltd., London.

T. H. Fear (1950) *Psychological Factors of Peace and War*—Hutchinson & Co.

G. W. Allport (1954) *The nature of prejudice. Addison*—Wesley Publishing Co., Massachusetts.

J. G. Miller (1950) *Experiments in Social Process*—McGraw Hill.

H. A. Murray (1938) *Explorations in Personality*—New York, O.U.P. Sections on Proposals for a theory of personality.

W. Wolff (1950) *Values and Personality*—Grune and Stratten New York.

Leeper (1943) *Topological Vectorial Psychology*, University, of Oregon,

"Is the Doctrines of instinct dead" and Personality—a Symposium in British Journal of Educational Psychology, 1941-46.

W. H. Sheldon (1940) *Varieties of Human Physique*, Harper Bros., New York.

G. S. Blum (1953) *Psycho-analytical theories of Personality*, McGraw Hill.

W. Dennis, Shartle, E. H. *et al* (1949) *Current trends in Industrial Psychology*—University of Pittsburgh Press.

O. H. Mowrer (1950)—*Learning Theories and Personality dynamics*, Ronald Press Co., New York.

F. H. Allport (1950) *Studies in Perception*,

Kentucky Symposium (1954) *Learning theory, Personality theory and Clinical research,* John Wiley & Sons, London Chapman and Hall Ltd.

Osgood : *Method and Theory in Experimental Psychology.*

Stevens : *Handbook of Experimental Psychology.*

Developmental Psychology

Pre-natal Development :

Beginnings of human life—Heredity—Hypotheses of inheritance of physical and mental traits—Physical development at pre-natal period—Differentiation of bodily parts—Development of nerves, muscles and brains—Experiments on human fetus.

Infancy :

Behaviour of the newborn—Motor and glandular equipment—Basic needs and emotional reactions—Experiments—Speech and language development—Intelligence in infants and its measurement—Development of self—Behaviour problems.

Childhood :

Motor development—Language and social development—Adjustment to school—Emotions and their expression—Thinking and Reasoning—Day dreams and imagination—Growth of Intelligence—Relationship with parents, siblings and companions—Children's interests—Growth of self-behaviour problems.

Adolescence :

Puberty—Physical and glandular changes—Growth of sex interests—Emotion and conflicts—Social intercourse—Attitude towards authority—Relationship with parents, siblings and companions—Behaviour problems.

Adulthood :

Physical growth and decline—Mental adjustment—Mental abilities—Learning interest and values—Vocational selection and adjustment—Sex differences in interests—Relationship with children.

Old Age :

Physical conditions at senescence—Climateric and menopause—Motor and mental abilities—Interests and values—Social behaviour —Hypotheses of decline of mental function.

References :

F. Goodenough (1945)—Developmental Psychology, New York, Appleton Century.

E. B. Hurlock (1953)—Developmental Psychology, New York, McGraw Hill.

Garrison—Growth and Development.

Carmichael—Manual of Child Psychology.

W. Dennis—Readings in Child Psychology.

Barker *et al*—Child Development.

Zubeck, P, and Soleberg—(1954) Human Development—McGraw Hill.

Physiological Psychology

1. *Cellular functions* :

The cell—Cellular differentiation—Nature of inter-cellular influences : Chemical factors—Metabolic factors, electrical factors—Field theory.

2. *The physiology of the nerve cells* :

Structure and function of the neurone—Action potential of nerve fibres—Factors affecting excitability—Tetanus—Oxygen-mineral balance—Synaptic functions—Successive inhibition—Reciprocal inhibition.

3. *Nervous system* :

Divisions of nervous system—Peripheral somatic system—Central somatic system—The brain—Spinal cord—Central autonomic system—Sympathetic system—Parasympathetic system.

4. *The Endocrine glands* :

Thyroxin—Insulin—Adrenin—Cortin—Gonadal hormones—Pituitary hormones—Homeostasis.

5. *Motor Disorders* :

Anterior poliomyelitis, Catatonic behaviour, Epileptic behaviour.

6. *Emotion* :

Neuro-sensory basis of emotional experience—James-Lange and Thalamic theories—Central mechanism of emotion.

7. *Motor Learning* :

Conditioning—Sub-cortical—Neural discriminative learning—Theories—Molar theories—Drainage theories—Irradiation theory, Gradient theory and Pattern theory.

8. *Memory* :

Localisation of memory functions—Physiological factors in memory.

9. *Symbolic Processes* :

Central versus peripheral basis of symbolic process in animals and human beings.

10. *Experimental Neurosis* :

Frontal lobes and neurosis—Lobotomy and changes in behaviour.

References :

C. T. Morgan—Physiological Psychology, 1943, McGraw Hill.

L. A. Jeffress—Cerebral Mechanisms in Behaviour (The Hixon Symposium, 1951).

R. Ashly—Design for a brain.

Stevens :—Handbook of Experimental Psychology.

Osgood—Method and theory in Experimental Psychology.

Comparative Psychology

Background :

Influence of Darwin's theory of evolution—Findings of Yerkes, Washburn, Watson, and Lashley and their influence on understanding animals, children and primitive people's behaviour. Recapitulation theory.

Instinctive functions and maturation :

Unlearned behaviour in animals and infants—Experiments of Coghill and Tracy—Maturation in animals and human beings and its influence on behaviour—Studies of primitive people.

Motivation :

Incentives and goals—Rewards and punishment—Concept of drive and emotion in animals and human beings—Effect of drug on behaviour—Experiments on animals.

Discrimination :

Behavioural aspects in animals, infants and children—Vision, olfactory, gustatory, cutaneous, proprioceptive—Directional sense.

Learning :

Simple motor learning—Reinforcement theory—Experiments in trial and error—conditioning and insightful learning—Function of language and intelligence in learning.

Thinking :

Reasoning in animals and children—Experiments on delayed reaction and multiple delayed reaction—Multiple choice problems—Judgment—Abstractions and generalisations—Thinking in primitive people—animism, fetishism, totemism and taboo—and magic.

Social behaviour :

Grouping and organisation in insects, animals, children and primitive people—Mateship, temporary and permanent in animals and primitive society—Herds and communities—Factors determining social relationships—Environmental, physiological and psychological—Social life in insects, monkeys, apes and primitive people—Communication in animals, children and primitive people.

References :

Mind of Primitive Man—F. Boas.

Philosophy of Religion—Galloway (Relevant portions).

Primitive Culture—L. B. Taylor.

Totem and Taboo—S. Freud—Pelican books, London.

E. A. Moss, E. L. Thorndike *et al*—(*Comparative Psychology*), 1946, New York, Prentice Hall.

Industrial and Vocational Psychology.

The field of Industrial Psychology : Basic psychological concepts.

Job satisfaction : Measuring job satisfaction.

Industrial morale : Determiners of morale—Measurement of morale—Methods of increasing industrial morale.

Incentives : Kinds of incentives—Complexity of motivation.

Job-analysis : Forms of job analysis—Occupational information. Experience versus training.

Time and motion study: Elimination of unnecessary movements—Chronocycle graph—Sino chart.

Fatigue: Experiments in measurement of fatigue—Elimination of fatigue effects.

Work environment—Noise of work—Illumination—Effect of short hours—Music and recreation.

Accident: Accident proneness principle—Accident reduction—Management and employee.

Employee-management relation: Means of communication between management and employee—Labour Unions—Labour unrest and strikes—The problem of absenteeism.

Psychloogical testing in industry: Advantages for limitations—Personnel Selection.

Public Relations: Consumer Research—Advertisement—Salesmanship.

Vocational Guidance: Special vocational tests and methods—Determinants of vocational aptitude—Directive and non-directive guidance—The importance of the counsellor—Relationship between vocational and clinical guidance.

References:

Hollingworth, H. L. (1920) *Vocational Psychology*, New York Appleton & Co.

Moore, B. V. and Hartmann, G. W. (1931)—*Readings in Industrial Psychology*, New York Appleton & Co.

Smith, M. (1944)—*Handbook of Industrial Psychology*, New York, Philosophical Library.

Drever, J. (1947)—*The Psychology of Industry*, London Methuen & Co., Ltd.

Blum, M. L. (1949)—*Industrial Psychology and its Social foundations*, New York Harper & Bros.

Dennis, W. J., Carrol, L. S. *et al* (1941)—*Current trends in Industrial Psychology*, Univ. Pittsburgh Press.

Shartle, C. L. (1949)—*Current trends in Industrial Psychology* Pittsburg University, Pittsburgh.

Blum, M. L. & Balinsky, B.—*Counselling and Psychology*, New York Prentice Hall.

Smith, H. C. (1955)—*Psychology of Industrial Labour*, New York McGraw Hill.

Crime and Delinquency

1. Delinquency and Crime—Definitions.
2. Hereditary conditions—Concept of 'born offender'.
3. Environmental conditions : Home, Poverty, Defective family relationships, Defective discipline ; Conditions outside home, companionship—Conditions of work and leisure.
4. Physical conditions : Developmental ; deviations in normal physical development—the under-developed—the over-grown—Adolescent—Periodicity in girls—Premature puberty.

5-a. Physicial conditions : Pathological.
Physical defect and disease—Chronic disease—Acute illness—head injury.

5-b. Intellectual conditions : Mental deficiency—Educational backwardness.

6. Emotional conditions : Mental conflicts and repressions—Needs of hunger, sex, acquisitiveness, wandering, curiosity, self-assertion, aggressiveness, fear and submission.
7. Personality Structure : Feelings of insecurity, inferiority and frustrations, lack of moral sense, pathological mental state—Kleptomania, Pyromania, etc. Frustration—Aggression hypothesis.
8. Causation : Multiplicity of contributory factors—Relative importance of congenital and non-congenital factors.
9. Prevention and treatment : Concept of punishment and role of guidance clinics and Juvenile psychopathic institutes—Correctional homes—Modern concept of prison—reform—Probation and parole systems—After care homes.

References:

1. William Healy (1924)—*The Individual delinquent*, Boston. Little Brown & Co.
2. Cyril Burt (1925)—*The Young Delinquent*, London University of London Press.
3. R. H. Gault (1934)—*Criminology*, London Heath & Co.
4. Dollard, Miller *et al* (1939)—*Frustration and Aggression*, Newhaven Yale University Press.
5. W. C. Reckless (1940)—*Criminal Behaviour*, New York McGraw Hill & Co.

6. K. Friedlander (1947)—*The Psycho-Analytical Approach to Juvenile Delinquency*, London Routledge & Kegan Paul, Ltd.

Applied Social Psychology

1. *Introductory :*

Selection and formulation of problems. Research design. Some general problems of measurement. Belief *vs.* Action. Limitations of social research methods.

2. *Data Collection :*

Observational methods. The Questionnaire. Interview, Projective techniques, Pictorial play and Psychodramatic techniques.

3. *Analysis and Interpretation of data.*

4. *Measurement of Discrimination and Prejudice :*

The Social Distance test. Evaluation of results so far obtained by this test. Other approaches to the experimental study of prejudice.

5. *Analysis of the means of Communication in Social Groups :*

Language. Experimental studies of cinema, radio and television as means of communication. Studies of newspaper content. Studies of text-book contents.

6. *Using research methods in the study of particular tension problems:*

Determining what type of technique to use. The composition of action groups. Exploiting public opinion. Co-operating with non-psychological agencies.*

7. *Experimental approach to the problem of attitude changing.*

8. *Community self-surveys :*

Fact finding methods. Arrangements for carrying out self-survey activities. Scope of self-surveys.

9. *Experimental study of tension in artificially created groups.*

10. *Problems of changing culture :*

Cross-cultural influences. Cultural reconstruction. Conduct, knowledge and acceptance of new values. Illustrations from the U.S.A., Brazil, India and other countries.

11. *Uses of statistical methods in Psychology and the Assumptions behind them.*

* This may be done with reference to a problem in the local area.

References :

1. Research Methods in Social Relations. Jahoda, Deutsch and Cook, Dryden Press, New York (For topics 1, 2, 3, 5, 8 and 11).
2. Experimental Social Psychology. Murphy, Murphy and Newcomb, Harpers, New York. (For all topics and especially for 4 and 7).
3. Resolving Social Tensions, Kurt Lewin, Harpers, New York (For 10).
4. Groups in Harmony and Tension, Sherif and Sherif, Harpers, New York (For 9).
5. The Race Question in Modern Science. UNESCO (For 10).

Branch VII—Languages

English

The scope of the Paper on History of English Language and Chaucer :

i. The main differences between the language groups of the world.

ii The Indo-Germanic Family in Outline.

iii. Periods of English, Old, Middle and Modern (a linguistic study).

iv. Vocabulary and Foreign Elements.

v. Chaucer, The Prologue and The Nun's Priest's Tale (Literary study).

The following books are recommended for this paper :—

1. Jesperson : The Growth and Structure of the English Language.
2. C. L. Wrenn : The English Language.
3. W. A. Palmer : Introduction to Linguistics.
4. Sweet, H : Primer of Old English.
5. Stuart Ghase : The Tyranny of Words.
6. Sheard : The words we use.

Branch VII—Sanskrit

Section A

The course in the general part shall comprise the study of :—

1. The History of Sanskrit Literature.

2. Prescribed Text-books in Poetry, Drama and Prose etc., the selections being fairly representative of the various stages in the history of Sanskrit language and literature.

3. Grammar, prosody, poetics and elements of Nyaya.

4. The course in the special part shall comprise the study of:—
   1. Prescribed Text-books selected from two of the following six branches of Sanskrit literature.

A. 1. Vyakarana ;
   2. Nyaya ; and
   3. Vedanta.

B. 4. Alankara ;
   5. Mimamsa ; and
   6. Sankhya-Yoga.

Of the two branches to be chosen, one shall be from A (1 to 3) and the other from B.(4 to 6).

Translation from Sanskrit into English and from English into Sanskrit shall be included in the papers on these Text-books.

A critical and comparative inquiry into the contents and value of the specified branches of the literature selected for study.

There shall be nine papers distributed over the various subjects as follows :—

1. Principles of Comparative Philology, Elements of Comparative Grammar and History of Sanskrit Language.

2. History of Sanskrit Literature.

3. Books of the Early period.
   Comprising selections from the Rig-Vedic Hymns, Rig-Veda, Upodghata, Nirukta, Brahmanas and Upanishads.

4. Books of the later Period.
   Comprising selections from classical literature—Poetry, Drama, Prose, Poetics and Prosody.

5. Selected portions from Grammar—Siddhantha Kaumudi and an essay work on Indian Logic.

6 to 8. There shall be three papers in the special part, two papers on the subject chosen from A and one paper on the subject chosen from B.

Questions in translation from Sanskrit into English and *vice versa* shall be included in each of these three papers,

the passages given for translation not being taken from any of the prescribed Text-books.

9. There shall be set two essays :—

1. An essay in English on a subject intimately related to the specified branch or branches of literature chosen under the special part and

2. An essay in Sanskrit on a general subject, not pertaining to any prescribed Text-book.

The allocation of marks between the two essays shall be two-thirds and one-third of the maximum respectively.

Branch VII—Sanskrit—Section A—Syllabuses

Section A.

History of Sanskrit Literature

There is no prescribed syllabus : the scope of the course is indicated by the study of the following books :

(1) A. A. Macdonell—History of Sanskrit Literature.

(2) A. A. Macdonell—Indi'as Past.

(3) A. B. Keith—Classical Sanskrit Literature.

(4) A. B. Keith—Sanskrit Drama.

(5) Winternitz—History of Indian Literature, Volume I.

(6) Das Gupta and De—History of Classical Sanskrit Literature.

Books recommended for consultation :

Keigi : The Rig Veda : The Oldest literature of the Indians.

Max-Muller : History of Ancient Sanskrit Literature.

Bloomfield : The Atharva Veda.

Rig, Yajus and Atharva-pratisakhyas.

Goldstucker : Panini, his place in Sanskrit Literature.

Weber : History of Indian Literature, translated by Manu and Sacharia.

Ragozin : Vedic India.

Rhys Davids : Buddhist India.

V. A. Smith : Early History of India.

Rapson : Ancient India.

R. C. Dutt : History of Civilization in Ancient India.

C. V. Vaidya : Epic India.

C. V. Vaidya : Riddle of the Ramayana.

Bhandarkar : Early History of the Deccan.

Schrader : Pre-historic Antiquities of the Aryan Peoples.

Langlois and Seignbos : Introduction to the study of the History (translated by Berry).

A. B. Keith : Religion and Philosophy of the Vedas and Upanishads (H.O. Series).

P. S. Deshmukh : The Origin and Development of Religion in Vedic Literature (O.U.P.).

2. Comparative Philology and Comparative Grammar, History of Sanskrit Language.

Comparative Philology and History of Sanskrit Language.

Introduction :—

Nature and scope of the subject—The meaning of Language.—The Utility of the study of the Comparative Philology.—The appropriateness of the name Comparative Philology etc., applied to this subject. The Comparative and historical methods adopted in the study of the subject to be illustrated by contrasting comparative and historical grammar with descriptive grammar.

The Four divisions of this science: (1) Phonology, (2) Morphology, (3) Comparative Syntax and (4) Semantics.

I. Phonology:

1. *Phonetics*:—The organs of speech—Sounds in detail—Voice pitch and stress: pitch accent and stress accent; neutral vowel, nasalised vowels and diphthongs: Sonants and Consonants, Semi-Vowels: Classification of Consonants according to (i) The manner of articulation; voiced, voiceless, voiced aspirate and voiceless-aspirate. (ii) The place of articulation: The Sanskrit terminology parallel to these glides.

2. *Classification of Languages*:—The meaning of family and its implciation in respect of languages: The Indo-European family of languages. Its constituents. The Genealogical classification of languages. The morphological classification of languages. The limitations of this mode of classification and the modern tendencies of languages. Centum and Satam groups of languages: Is the basis of the distinction between the Centum and Satam Groups geographical or phonological? The discovery of Tocharian and the Hittile. The distinguishing marks of the Indo-Germanic languages—The conception of a root. The distinction between the Semitic and the Indo-

Germanic languages: Cognate Languages and dialects generaly explained.

3. *Comparative Philology*: *A brief history of*: The so-called discovery of Sanskrit. The comparative study of the structure of the language leading to the New Linguistic Science. All this inspired by the grammar or Panini. A short history of the makers of Comparative Philology.

Three stages:

(i) Bopp, Rask, Grimm and others.

(ii) Curtius, Pott and others.

(iii) Brugmann, Delbruck, Macdonell, Wright, Uhlenbeck, Giles and others:

The development of the different theories in the hands of these: *e.g.*, The Vowel-theory : (1) The Sanskrit influence very great in the first period and the simple vowel system of Panini accepted in the first period. (2) Doubts cast on the soundness of this view. (3) The new vowel-theory and the strong-grade Forms of the roots accepted by the younger grammarians and dethronement of Sanskrit. All this resulted from the discovery of the Law of Palatalisation. The theory of Sonant Nasals.

4. *Two Great Principles:*

Phonetic Law and Analogy. The meaning of phonetic law and its limitations explained with reference to the law of Palatalisation. How this law led to the displacement of the old vowel-theory by the new vowel-theory. Other Phonetic laws—Grimm's Law, Verner's Law, Grassman's Law, Fortunatov's Law.

5. *Conception of Analogy* :

The causes of Analogy—The kinds of Analogy— (1) Formal (2) Logical and (3) Proportional. The Conservative and alternative aspects of analogy to be explained and illustrated: Its workings in Sandhi, declension and conjugation.

6. *Change in General:*

Change is the life of language. Sound change and Semantic change—The different classes of Sound change in detail : (1) Unconditional or isolative sound changes and conditional or combinatory sound changes. (2) Acoustic changes and organic changes. (3) Gradual and sudden changes (Haplology and metathesis) and (4) Assimilatory sound changes, dissimilatory sound changes and compensatory sound changes.

Progressive and regressive assimilation: De-aspiration: Anaptyxis, Epenthesis, Prothesis, Syncope, Apocope, Apharaesis etc.

7. *The causes of Sound Change:*

(1) Anatomical causes (2) Geographical condition (3) Psychological causes (4) Speed of utterance (5) Ease of utterance or Economy of utterance (6) Emphasis or clearness (7) Analogy (8) Shifting of Accent leads to the qualitative and quantitative changes.

8. *Dialects and languages—Three dialects in the Primitive Aryan—Rhotacism—The history of these dialects—Vedic, Epic and classical Sanskrit:*

Prakrit dialects (Middle Indian and New Indian speeches).

9 *Phonology: Vowels:*

Two heads—Sonants and Consonants.

Sonants:—The Indo-Germanic Vowel-System: The inter-relation of the Sonants of the Sanskrit vowel system and the vowel-system of the Parent speech. Reconstruction of the hypothetical forms of the Parent speech: study of the Phonetic antecedents of Sanskrit vowels and also the phonological descendants of the vowels of the Parent speech.

(1) Indo-Germanic a, e, o. Many are the sources of Sanskrit " a ".

(2) a, e, o, Sanskrit a, Sources of Sanskrit a.

(3) Diphthongs ai; ei; oi

au; eu; ou: The representation of these diphthongs in Sanskrit, when they are in tautosyllabic and heterosyllabic combinations. Sources of Sanskrit Diphthongs e, o, ai, au.

(4) The Postulation of short sonant nasals in the Parent speech; Brugmann's view of accented sonant nasals. The problem of long sonant nasals: The soundness of Brugmann's view.

(5) Sonant liquids—treated under 3 heads by Brugmann. Their representation in Avesta, Sanskrit, Prakrit.

Long Sonant Liquids—The views of Brugmann and Uhlenbeck.

(6) i, u, Sources of Sanskrit i and u.

(7) Epenthesis.

(8) Neutral Vowel—Its character, representation in Sanskrit, when accented and unaccented; in combination with liquids.

10. *Ablaut:*

Its character and exact meaning—Six series of Ablaut. The bearing of pitch and stress accent on ablaut. Ablaut in roots and suffixes

illustrated. Parallel series of Ablaut—Ablaut compared with the Paniniyan scheme of vowel gradation: Panini discovered the importance of " Ablaut " in Linguistics and Grimm christened it with the name " Ablaut".

The morphological bearing of Ablaut. Identification of the ablaut-phases in select instances in Sanskrit and their location in the Indo-Germanic Scheme of Ablaut.

The phenomena of (i) Apocope (ii) Apharaesis (iii) Syncope.

II. *Phonology:—Consonants:*

Consonants—Their nature as contrasted with sonants. Consonants classified according to the place of articulation and manner of articulation—Sanskrit terminology corresponding to them: Sthana and Prayatna fully explained again.

(i) Semi-Vowels—The representation of Indo-Germanic semi-vowels and the sources of Sanskrit semi-vowels (Two-fold).

(ii) Liquids—Their representation in Sanskrit and Prakrit The three Aryan dialects: Anaptyxis; Prothesis; Final Anaptyxis.

(iii) Nasals: Their representation and the source of Sanskrit Nasals. Glides considered in detail—Cerebralisation in Sanskrit.

(iv) Explosives: (1) Gutturals—3 series—Languages with and without abialisation. Their representation in Sanskrit. The sources of Sanskrit (i) Gutturals and palatals, (ii) Labials, (iii) Dentals. The sources of Sanskrit Cerebrals.

(v) Spirants—The Indo-Germanic Spirants. The source of Sanskrit Spirants.

(vi) Indo-Germanic accentutation in comparison with Sanskrit accentuation. Stress and pitch fully explained. Earlier preponderance of stress; and later preponderance of pitch towards the close of the primitive Indo-Germanic period (Refer to Sanskrit and Greek accentuation).

(vii) Sandhi: Indo-Germanic Sandhi: Internal and external sandhis and analogy in Sandhi: How sandhi came to be overdone in Sanskrit: Historic survivals in Sandhi.

II. Morphology:

I. Its meaning—How words are made and were made. Morphological classification of languages—not quite satisfactory from a logical point of view. Is there a historical sequence between these three modes that form the basis of morphological classification? The answer is yes and no. (*e.g.*, Sanskrit and English).

Principles of Indo-Germanic Morphology:—This deals with word formation. It consists of (1) stem-formation (2) inflexion.

The meaning of formative suffixes and inflections to be explained and illustrated (प्रत्यय and विभक्ति). How did the suffixes arise in the primitive Indo-Germanic languages? Various theories propounded.

(1) Brugmann and Bopp—the fundamental principle of word formation was composition at an earlier stage leading to inflexion at a later stage. "Agglutination run mad is inflexion". From juxtaposition arose composition. From composition arose inflexion (illustrate from English). Cases of Stem-forming suffixes of arrested corruption in Sanskrit lead to the inference that they should have preceded from an earlier stage of composition to inflection—See Taddhita affixes.

(2) Speculations regarding the origin of word formation in 19th Century and after. Four theories held (i) Evolution theory of Schlegle. (ii) Composition theory of Bopp. (iii) The Adaptation theory of Ludwig. (iv) The Secretion theory of Jesperson.

(i) Schlegel's Views :

Fully formed words existed at first and later the final elements came to be associated with some value and they were separated and regarded as inflections and from them arose also the pronouns. Note the similarity between 1st and 3rd person termination and 1st person and demonstrative pronouns—This theory had little support.

(ii) Composition or Agglutination theory (Read Jesperson 375 *ff.*) of Bopp.

Roots existed originally along with pronominal terms. By a combination and fusion of these elements arose verbs with inflections. Explain with reference to the example deksyati (deik—es—ei—ta; he is going to show)

(iii) Adaptation theory of Ludwig :—

There existed full words and certain parts came to be associated with some particular value and they were freed from the whole and adapted to form other words. Irradiation and Appophomia and Metanalysis.

(iv) The Secretion theory of Jesperson :—

Diagrammatical representation of these theories : Criticism of these theories—Adaptation theory is a slight extension of the Evolution theory—It assumes side by side with full words independent existence for pronouns and derives verbal endings from their relation with pronouns. The secretion theory also assumes full words at the begin-

ning and through metanalysis certain parts are freed and given some value and they are added to other roots to form new words *e.g.*, dual endings and feminine affixes.

The relative merits of these theories—The adaptation theory was an improvement on the Evolution theory. It was christened. "The Secretion Theory" by Jesperson and well illustrated. He omitted to accept that verbal endings had values at the beginning. Limitations of the composition theory fully brought out by Jesperson. Secretion theory by itself is not adequate to account for all cases. Hence both the composition and the secretion theory necessary and should be utilised according to the demands of the case.

III. Origin of Language:

Nominal and pronominal roots, and demonstrative or deictic roots. The first formed by the post-positional and the prepositional method—Linguistic drift—conservative and innovating forces in language illustrated. How words arose from the roots it is beyond human comprehension—Philologists put forward many theories which are sometimes fantastic.

(i) Onomatopoeic theory.

(ii) Interjection theory (Pooh-pooh theory; Bow-vow theory).

(iii) Ding-dong theory or Nativistic theory.

(iv) Yo-he-ho theory.

(v) A theory which said that words arose from an attempt to vocalize muscular action. None of the above adequate to account for the first origin which is shrowded in darkness.

IV. Compounds:—

Obscure compounds: Reduplication a factor in word formation arose from combination. Two features of a compound (i) Unity of accent. (ii) Unity of Expression. Considered from two points of view (1) Morphological (2) Semantic.

Four main types in the morphological classification explained and illustrated:

(i) Co-ordination as opposed to subordination. Two main principles underlying the semantic classification.

(ii) Epithetised formations as opposed to non-epithetised formations. Subordinating class represents the larger group. Six varieties under this class all traceable to the Indo-Germanic period. Panini's

classification primarily a semantic one. Tatpurusha corresponds to this class.

Co-ordinating type of compounds very rare in the Indo-Germanic period. It is peculiar to the Aryan and particularly to the Indian. The development of this compound in the Vedic period. Seven stages explained and illustrated. Epithetised compound—their development from (i) non-epithetised compounds as a result of the transmutation of meaning and (ii) from phrases used appositionally or predicatively to qualify substantives.

Panini's classification examined in the light of the above classification: both Semantic and Morphological.

V. Suffixes:

Their origin through agglutination, secretion etc. Their classification into Primary and Secondary, corresponding to Krt and Taddhita. Consideration of the soundness of Panini's classification.

Composite suffixes—Three ways in which they have arisen illustrated. Suffixes exhibit vowel gradation in those that form participles, abstract nouns, agent-nouns and many other substantives and adjectives to be illustrated.

The rise of substantives from adjectives and adjectives from substantives. Both were distinct grammatical categories even in the primitive period. Two features of adjectives (i) Variation of gender and (ii) Comparison.

The origin and development of the comparative and superlative suffixes:

tero; tmmo

ero; mo

ies; to

iies; isto

Some typical suffixes considered: nt-present participle suffix uent—ta-vant (primary or secondary?)

mno; mano; mono etc.

Past participle suffixes; gerundive suffixes, Secondary suffixes, suffixes that form (i) names of kinship (ii) names of animals (iii) Nomina agentis (iv) Nomina instrumenti (v) Nomina loci (vi) Collective nouns (vii) diminutives (viii) abstract nouns.

The history of (i) The Vedic infinitives and (ii) Gerunds.

The origin and historical inter-relations of the various parts of speech. Substantives and adjectives already considered. Nouns and pronouns. Nouns and verbs. Nouns and adverbs, prepositions (Adnominal and adverbial), interjections and conjunctions.

Numerals: Cardinals and Ordinals—their origin and formation. Ordinals in their relation to superlatives.

VI. Declension:—

Two main heads—(1) Nominal and (2) Pronominal declensions; Adjectives were declined like nouns while pronominal declension was different. Identical declension between nouns and adjectives was preserved best in Sanskrit and to some extent in Greek, Latin and German.

Declensional categories are: (1) number (2) gender and (3) case and in pronouns (4) person also.

(1) Number—singular and plural earlier. The dual existed in the Indo-Germanic period. The rise of the dual through secretion from singular words denoting natural pairs. Dual forms discarded in modern languages.

(2) Gender—3 genders—masculine, feminine and neuter. Originally based upon sex. In Sanskrit grammatical gender was adopted—Origin of grammatical gender—(1) Feminine—terminal elements of some words associated with the idea of the feminine. (2) Neuter arose from (i) Masculine accusatives and (ii) Feminine collective singulars.

(3) Case-forms—Greater variety in the primitive period; *of* Vedic Sanskrit with classical Sanskrit. All the eight cases existed in Indo-Germanic Parent Speech—The tendency to simplify case system called Syncretism—two-fold. (i) formational and (ii) functional or semantic. Cases reduced in Greek, Gothic, Latin and German. Functional Syncretism reached its height in Sanskrit in शेषे षष्ठी

The causes of Syncretism: the less frequent use of the cases.

Nominal declension—case endings in detail. Two classes—Vowels and Consonant stems.

Singulars—the deviations in certain cases due to analogy. Plural—The appearance of bh in dual and plural.

Pronominal declension—confusion of accented and unaccented forms in the 1st personal and the 2nd personal pronouns. Pronouns without gender and pronouns with gender. 1st and 2nd persons, and 3rd person, demonstrative etc., strong, middle and weak cases in declensions.

Declensional contamination—Some noteworthy cases. Metaplastic series—the workings of formal, logical, and proportional analogy.

(1) in and i stems.
(2) dik and vit.
(3) Naptr.
(4) Mahantam.
(5) Comparatives in ईयस्
(6) Vant, vas and van. (Maghavan, Vidvas etc.)
(7) Stri, pati, pathini क्रोष्टु etc.

The influence of pronominal declension on nominal declension and *vice versa.*

VII. Verb Morphology :—

Special features of verbs: (i) personal endings, (ii) augment (iii) reduplication and (iv) the distinction of voice, tense and mood.

The Indo-Germanic finite verbs had 3 numbers like nouns. The two voices—active and passive or middle significantly expressed in Sanskrit.

Two chief types of verbal action (i) Aoristic or Momentary type and (ii) durative or imperfective type.

The defective verbs of the separate languages adopt one or the other of these two types. The thematic and a-thematic stems. The origin of the distinction due to the shifting of accent; Vikaranapratyayas of Panini. The transfer of a-thematic to thematic class more common than the opposite—*cf.* some nouns that are transferred from consonantal to vowel stems.

Augments:—Two kinds (1) अडागम (2) इडागम

(i) is the remnant of an old adverb bearing the accent.

(ii) it may be a glide or an etymologically integral part of the stem itself.

Reduplication—its purpose—not necessarily a part of the Perfect system. Personal ending—Primary and Secondary.

मि—1st person singular gets confused in Sanskrit with O—Secondary endings are broken endings without full syllable. The reason for this is the addition of the augment with accent.

VIII. Tense formations:—

Ten tenses and moods and ten conjugation signs—review of these signs. Morphological classification of the tense formations:—

(1) Present—Aorist system (2) The Perfect system:

Moods—There were four moods. The Subjunctive, Injunctive, Optative and the Imperative. All these used in the Vedic—Modal formations made with the Present, the Aorist and the Perfect stems. The history of the moods particularly the subjunctive and their relation to the future.

Future systems—3 types.

Perfect system—Reduplication, pluperfect and periphrastic formation.

Aorist—Two types—root-type and the sigmatic type.

Derivative verbs—(1) Caustive, desiderative, the frequentative and intensives. (i) denominatives similar to causatives. (ii) Causatives associated with the intensive sense *e.g.*, the Causative associated with the reduplicated aorist. The desideratives—Frequentatives, and Intensives.

III. Semantics:

Appreciation: Pejoration: Faded Metaphors.

Books recommended for study:

1. Jesperson : Language, its origin, nature and development.
2. Giles: Short Manual of Comparative Philology for classical students (Macmillan).
3. Tucker: Introduction to the Natural History of Language (Blackie).
4. Sweet: History of Language (Temple Primer).
5. Bloomfield: Introduction to the Study of Language (G. Bell & Sons).
6. Macdonell: Vedic Grammar for Students (Oxford University Press).
7. Uhlenbeck: Manual of Sanskrit Phonetics (Luzac & Co.).

Books recommended for consultation:

1. Brugmann: Comparative Grammar of the Indo-Germanic Languages, translated by Wright, Conway and Rouse.
2. Bopp: Comparative Grammar of the Sanskrit, Zend, Greeky, Latin, Lithuanian, Gothic, German and Slavonic languages (Translated by East Wick).
3. Whitney: Life and Growth of Language.

5. Whitney: Oriental and Linguistic Studies.
6. Max-Muller Lectures on Science of Language.
7. Max-Muller: Biography of Words.
8. Delbruck: Introduction to the Study of Language.
9. Lefevre: Race and Language.
10. Grey: Principles of Indo-Iranian Phonology.
11. Wackernagel: Altindische Grammatic.
12. Macdonell: Vedic Grammar.
13. Arnold: Vedic Metre.
14. S. M Katre: Some problems of historical linguistics in Indo-Aryan.
15. Balakrishna Ghosh : Linguistic introduction to Sanskrit (Published by Indian Research Institute, Calcutta.)
16. I. J. S. Taraporewalla : Elements of Science of Language (Published by The Calcutta University.)
17. T. Burrow: The Sanskrit Language.
4. Whitney: Language and its Study.
18. Peterson: Linguistic Science in the 19th century.
19. Graff: Language and Languages.
20. Vendryes: Linguistic Introduction to History.
21 Wright: Comparative Grammar of the Greek Language.

Grammar and Elements of Indian Logic.
(This covers Paper V of the course.)

Grammar : Siddhantha Kaumudi—Purvardha Sections—(1) Samjna (2) Paribhasha (3) Sandhi (4) Karaka to Apatyadhikara.

Uttarardha Sections: Dasavikaranis—Atmanepada prakriya—Parasmaipada prakriya, Lakarartha prakriya to the end of Kaumudi including Vaidika and Swara prakriya, omitting Unadi.

(ii) Elements of Indian Logic. Tarkasangraha with Deepika studies along with Professor Kuppuswami Sastri's Primer of Indian Logic.

Branch VII—Sanskrit.

Section B

The course for the M.A. Degree in Sanskrit (Section B) sha comprise the study of the following subjects according to syllabuses prescribed from time to time:

i. Indian History and Culture from the earliest times to 1200 A.D.

ii. History of Sanskrit Language and Literature.

iii. One of the following groups to be studied for a period of two academic years or six terms

a. Mimamsa.

b. Vedanta.

c. Nyaya.

d. Vyakarana.

e. Sahitya.

f. Jyotisha.

g. Ayurveda.

The groups shall comprise the following subjects :

(a) i. Prescribed Text-books relating to Purva-Mimamsa.

ii. Application of Mimamsa to Vedic Exegesis and to the proper comprehension of the social and legal aspects of the Dharmasastras.

(b) i. Prescribed Text-books relating to the Vada Prasthana of one of the three South Indian Schools of Vedanta *viz.*, Advaita, Visishtadvaita and Dvaita.

ii. Prescribed Text-books relating to Yoga, Sankhya and the elements of the three South Indian Schools of Vedanta.

(c) Prescribed Text-books relating to Nyaya and Vaiseshika Darsanas including select portions of Uttaravada and Sabdabodha works in Nyaya and Mimamsa.

(d) Prescribed Text-books relating to advanced Vyakarana, including Sabdabodha works in Vyakarana and select portions of the Mahabhashya and standard commentaries on the Sidhantakaumudi.

(e) i. Prescribed Text-books relating to Grammar, Prosody and Poetics.

ii. Prescribed Text-books of an advanced character relating to Alankara Sastra.

(f) Prescribed Text-books of an advanced character in Jyotisha and Ganitha.

iv. Essay on subjects connected with the group chosen :

Two essays shall be set in English and Sanskrit and each essay shall carry 100 marks.

Indian History and Culture from the Earliest times to 1200 A.D.

Syllabus.

(i) Early Indologists—Prinseps, Sir William Jones, Max-Muller.

(ii) Pre-history—Harappa Culture.

(iii) Proto-history—Dravidian speakers ; Indo-European speakers and their original home.

(iv) Culture of the Rig Veda ; the later Vedic age ; the Epics and the Puranas.

(v) Sources of Indian History down to 1200—Archaeological and Literary.

(vi) Age of the Buddha—Oligarchies, Republics. The rise of Magadha ; Religious reform and political speculation India's contact with Iran.

(vii) Age of the Mauryas—Alexander—Chandragupta—Kautilya—Asoka and his edicts.

Contemporary Tamil Kingdoms. Mauryan Administration, Art and Architecture.

(viii) Age of Invasions—Indo-Greeks, Sakas, Pahalavas Kushans.

The Sungas and the Satavahanas—The stupa and the cave temple—The Sangam Age—The Kshatrapas.

(ix) The Age of the Guptas—Social and Political life.
The Guptas and the Vakatakas.

Art and Architecture—Ajanta—Bagh. The Pallavas—the Chalukyas—the Rashtrakutas—Transmission of Indian Culture to South East Asia. Later Guptas—Harsha.

(x) The Rajputs—Early Muslim invasions—the Pandyas, the Cholas—Chola administration—Their contribution to art and architecture—Hindu Religious revival.

Books recommended :

1. Macdonell, A. A.—India's Past.
2. Basham, A. L.—The Wonder that was India.
3. Garratt, G. T.—The Legacy of India.

Branch VII—Arabic

Group A

Prose, Paper I : (Till 1000 A.D.).

1. Jamharat-o-Khutub il Arab, Vols. I and II.
2. Al Bayan Wat Tabyin by Al Jahiz, Vols. I to III.
3. Maqamat-o-Hariri.
4. Uyunul Akhbar by Ibn Quatiba, Volumes I to IV.

r se, Paper II : (After 1000 A.D.).

1. Mu'jamul Udaba by Al Hamawi ,Volumes I and II.
2. Hadithul Arba'as by Dr. Taha Hussain, Volumes I and II.
3. Kharidat ul Ajaib by Ibnul Wardi.
4. Al Mustatraf by Al Abshihi, Volumes I and II.

Group B

Poetry, Paper I : (Till 1000 A.D.).

1. Diwan-o-Umar Ibn-i-Abi Rabi'ah (Complete).
2. Al Hamasah by Abu Tammam
3. Diwan ul Akhtal.
4. Diwan-o-Abi Nuwas.

Poetry, Paper II : (After 1000 A.D.).

1. Diwan-o-Ibn-i-Sanail-Mulk—edited by Dr. M. Abdul Haq.
2. Diwan-o-Umar Ibnil Farid.

Group C

(1) *Quranic Studies and Hadith Literature* :

1. Al Itqan Fi Ulumil Quran by Siyuti, Volumes I and II.
2. Tafsir ul Manar by Rashid Rida, Volumes I and II.
3. Tafsir ul Jawahir by Tantawi, Volumes III and IV.
4. Nukhbat ul Fikr by Ibn Hajar.
5. Sahih-o-Muslim (Complete).
6. Ta'jilul Manfa'ah by Ibn Hajar (Published by Deiratul Ma'arif, Hyderabad, Deccan).
7. Tanbihul Ghafilin by Nasar bin Muhammad Samarqandi.
8. Bustanul Arifin by the same author.

(2) *History of Arabic Language and Literature* :

1. Tarikh-o-Adab il Lughat il Arabiyyah by Jurji Zaidan, Volumes I to IV.
2. Tarikhut Tamaddun il Islami by the same author, Volumes I to IV.
3. Fil Adabil Juhiliyyi by Dr. Taha Hussain.
4. History of Arabic Literature by Nicholson.

Group D

1. *History of the Arabs* :

1. History of the Arabs by P. K. Hitti.
2. Al Kamil by Ibnul Athir.
3. Moors in Spain by Lane Poole.
4. The making of Humanity by Robart Briffault.

(2) *Rhetoric and Prosody* :

1. Al Mutawwal by Taftazani.
2. Al Balaghat u Wadeha.
3. Al Irshad ul Wafi, Fi Ilmaiyil Arud Wal Qawafi, by Daman hurl.
4. Ath Thurayyal Mudi'ah Fid Durusil Arudiyah by Al Ghalayini.

Branch VII—Persian

Group A

Prose, Paper I : (Iranian Authors).

1. Lubab-ul Albab-Aufi.
2. Safar Nama-i-Hakim Nazir Khusraw.
3. Anwar-i-Suhaili.
4. Hafi Baba Isfahani.
5. Safar Nama-i- Nasiruddin Shaha Qachar.

Prose, Paper II : (Indian Authors).

1. Ruqa't-i-Abul Fazal.
2. Seh Nathr-i-Zuhuri.
3. Waqaye' Ne'mat Khan-i-Ali.
4. Bahar-i-Danish.

Group B

Poetry, Paper I : (Iranian Poets).

1. Sikandar Nama Barri by Nizami.
2. Mathnawi Yusuf Zalikha by Jami.
3. Diwan-i-Sa'di Shirazi (Ghazala only).
4. Diwan-i-Saib.
5. Qasaid-i-Qa'ani.

Poetry, Paper II : (Indian Authors).

1. Diwan-i-Amir Khusraw Dehlawi.
2. Diwan-i-Ghani Kashmiri.
3. Jawid Namah by Iqbal.
4. Futuhus Salatin by Isami—edited by A. S. Usha—Published by Madras University.

Group C

(1) *Mysticism and Ethics* :

1. Akhlal-i-Jalali.
2. Kimiya-i-Sa'adat by Ghazali.
3. Nafhatul Uns by Jami.
4. Kashful Mahjub by Ali Hujweri.

(2) *History of Persian Language and Literature* :

1. Iran Namah by Shustari.
2. Khizan-i-Amirah by Bilgrami.
3. Nigaristan-i-Fars by Azad.
4. Sikhanwaran-i-Iran by Muhamad Ishaq (2 volumes).
5. Literary History of Persia by Browne, Vols. I to IV.

Group D

(1) *Rhetoric and Prosody* :

1. Platt's Persian Grammar.
2. Hadaiqul Balaghat by Imam Bakhsh Sahbai.
3. Arud-i-Saifi.
4. Misbahul Qawaid by Ja'fari.
5. Kanzul Balaghat by Ja'fari.

(2) *Literary Criticism* :

1. Sherul Ajam by Shibli (complete).
2. Tahqid Bar She'rul Ajam by Mahmood Khan Shirani.

Group A

Prose—Paper I : (Nineteenth century prose).

1. Tahzeebul Akhlaq, Volume II by Sir Syed Ahmed Khan.
2. Maqalet-i-Shibli (Vols. I and II).
3. Mazamin-i-Sharar (Adabi).
4. Fisana-i-Azad by Sarshar, Vols. I—IV.

Prose—Paper III : (Twentieth century Prose).

1. Khayalistan by Sajjad Hyder.
2. Ahraman Wa Yazdan by Niyaz Fatahpuri.
3. Athari-i-Abdul Kalam Azad by Qazi Abdul Ghaffar.
4. Adabi Diary by Akhtar Ansari.
5. Hal Ke Saye Men by Krishnan Chandar.

Group B

Poetry—Paper I : (Nineteenth century Poetry).

1. Diwan-i-Ghalib.
2. Qassaid-i-Dhauq.
3. Marath-i-Anis, Vol. I (Nizami Press, Badayun).
4. Nathnawi Sehrul Bayanyby by Mir Hasan.
5. Intekhab-i-Nazir by Makhmoor Akbar Abadi.

Poetry—Paper II : (Twentieth century).

1. Bang-i-Dara by Iqbal.
2. Saif-o-Sabu by Josh.
3. Gulkada-i-Khayal by Jigar.
4. Ahang-i-Majaz by Asrarul Haq.
5. Shu'la-i-Gul Ahmed Nadim Qasimi.

Group C

I. History of Language and Literature :

1. Muqaddama-i-Tarikh-i-Zaban-i-Urdu by Dr. Mas'ud Hussan Aligarh.
2. Adab Aur Zindagi by Ehtesham Hussain.

3. Mulk-i-Adab Ke Shahzaday by Dr. Ejaz Husa
4. Tarikh-i-Adab i-Urdu by Askari.

II. Literary Criticism :

1. Urdu Tanqid Ka Irteqa by Noorul Hasan Hashimi.
2. Taraqqi Pasand Adab, Volume I by Sardar Ja'fari.
3. Adab Aur Nafaiyyat by Shakil ur Rahman.
4. Urdu Ghazal by Dr. Yusuf Husain.

Group D

I. Rhetoric and Prosody :

1. Bahrul Fasahat by Najmul Ghani.
2. Qawaid-i-Urdu by Dr. Abdul Haq.
3. Kaifiyyah by Pandit Datataria Kaifi.

II. Persian Language, Grammar and Idiom:

1. Ganjina-i-Adab by Ja'fari.
2. Misbahul Qawaid by Ja'fari.
3. Kanzul Balaghat by Ja'fari.

Branch VII—Tamil

Syllabuses and Text-books

Paper I.—Grammar, Descriptive Analysis, Comparative Grammar and History of Tamil Language.

Part I.—Grammar :

1. Nannul—Eluttu, Col—Texts only.
2. Tolkappiyam—Eluttu, Col—Texts only.

Part II.—Descriptive Analysis :

1. Phonetics, Phonemics and Phonology to be correlated with Nannul—Eluttiyal and Tolkappiyam—Eluttatikaram.

   Nunmarapu, Molimarapu and Pirappiyal.

   Phonetic changes—Principles of assimilation and dissimilation—Nannul Punariyalkal and Tolkappiyam.
   Eluttatikaram : Tokaimarapu and Punariyalkal.

2. Morphology to be correlated with Nannul and Tolkappiyam—Collatikarankal.
   Morpheme Classes—Peyar, Vinai, etc.

Roots (Uricool—Various kinds of particles. Itaiccot Suffixes of tinai, gender, number, person, case, times, negation, participles, interrogation etc.

3. Classes Syntax — Syntax classes — Interchange of Morpheme—Verbal nouns, Participle nouns, Appellatives, Murreccams etc.

Order of words in sentences—the determined and the determinant (vinai eccam, peyar eccam, atai, ataikoli).

Compounds and Phrases.

Compound roots.

Principles correlated with Nannul—Peyar iyal, Potuviyal.

Tolkappiyam—Kilaviyakkam, Verrumai iyal, Verrumai mayankiyal, Eccaviyal.

4. Semantics—Meaning and change of meaning.

Principles to be correlated with : Akupeyar, Kurippu, Valakku and Ani.

5. Dialectalogy—Ticaiccol.

Books Recommended :

1. Dr. Gleason's Introduction to Linguistics.
2. Bloomfield's Language.
3. Vendryes' Language.
4. Phonetics by Hoffner.
5. General Phonetics by Armstrong.
6. Phonemics by Pike.
7. Morphemes by Nida.
8. Meaning and Change of Meaning by Richards.

Part III.—Comparative Grammar and History of the Tamil Language:

Phonology—Change of sounds from time to time—Morphemics and Syntax—The History of the various particles and the construction in Tamil—The characteristic features of the Sangam Language—Neologies therein—The characteristic features of the language of Silappadhikaram and Tirukkural—The language of the Pallavas—The language of the Chola period —The language of Virachozhiyam and Nannul—Tami as heard and understood by the Westerners—Modern Language—Literary and Colloquial—Language and Language families—

The Dravidian group—The enumeration of Dravidian Languages and their characteristic features—Tamil compared with the other Dravidian Languages from the point of view of phonetics—Phonemics, Morphemics, Syntax and Vocabulary.

Influence of one language group on another language group—Foreign influence on other language and language groups.

Books recommended : In addition to those prescribed for Descriptive Analysis :

1. Comparative Grammar of Dravidian Languages by Dr. Caldwell.
2. Grammatical Structures of Dravidian Language by Jules.
3. Linguistic Survey of India—Vol. IV—Dravidian Language (Bloch.)
4. Molivaralaru by Dr. M. Varadarajan.
5. Peterson's Philological Method in the XIX Century.

Note:—The Paper I will thus consist of three parts, carrying equal weight and the Question Paper will consist of three parts carrying equal marks; the first part shall consist of questions on Grammatical Texts and traditional interpretations thereon; the second part shall consist of questions on the Descriptive Analysis and the third part shall consist of questions on Comparative Grammar and History of Tamil language.

Paper II.—Prosody, Poetics and Literary Criticism:

Part I.—Prosody: Syllabus in correlation with the Text-Book.

Text-book Prescribed: Yapparungalakkarigai—Text only.

Part II.—Poetics: Syllabus in correlation with the Text-book:

Meyppatu or Rasa—Ani or Figures of Speech and Style—Various kinds of literature—Distinction between Akam and Puram—Theory of Guna Ani—Dvani, Imagination, Form, Content—Poetry—Music—Prose—Lyric Poetry—Religious Poetry—Didactic Poetry—Heroic Poetry—Puranam, Novel, Short Story Elegy—Satire—Epistles—Theory of Epics—Theory of Prabandhams—History of these Literary types and forms in Tamil.

***Text-books prescribed*:**

1. Tolkappiyam—Uvamaiyiyal, Meyppattiyal.
2. Dandiyalankaram—Guna Aniyiyal and the first sutram of Porulaniyiyal and first sutram of Chollaniyiyal.

3. Purapporul vennbamalai—Sutrams alone.
4. Nambi Akapporul—Sutrams alone.
5. Vennbappattiyal—Text alone on the classification of Prabandhams.

Part III.—Literary Criticism:

The following books are recommended for indicating the scope for the study of the subject.

1. Introduction to the study of Literature by Hudson.
2. Literary Criticism by I.A.Richards.
3. Literary Criticism by Abercrombie.
4. Principles of Literary Criticism by Winchester.
5. History of Criticism by Saintsbury.

Note:—The Question paper shall consist of three parts:

(1) Prosody:

(2) Poetics; and

(3) Principles of Literary Criticism and shall carry equal marks.

Paper III: Prescribed Text-books and History of Literature pertaining thereto—I.

Selected portions or books from the following to be prescribed from time to time:

Sangam Literature—Pattuppattu, Ettuttokai, Patinenkilkkanakku—Silapadhikaram and Manimekalai.

Paper IV:—Prescribed Text-books and History of Literature pertaining thereto—II.

Selected portions or books from the following to be prescribed from time to time:

Hymns—Other Kavyas including Puranas and Prabandhas.

Paper V.—Prescribed Text-books and History of Literature pertaining thereto—III.

1. Selected portions or books in Prose and Drama from the earliest times to the modern period.
2. Selected portions or books from modern Poetry.

Paper VI.—Tamil Nad and Culture:

The course is intended to present an integrated picture of the various aspects of Tamil culture in its historical setting.

Books recommended:

S. K. Aiyangar's Some Contributions of South India to Indian Culture (Calcutta University).

S. K. Aiyangar's Collected Works (2 Vols.)—published by Oriental Publishing House, Poona.

K. A. Nilakanta Sastry's 'The Cholas' (2nd edition).

do The Pandyan Kingdom.

do Foreign Notices of South India.

do A History of South India.

Dr. Minakshi's Administration and Social Life under the Pallavas.

R. Gopalan's History of the Pallavas of Kanchi.

Dr. Mahalingam's South Indian Polity.

P. T. Srinivasa Aiyangar's History of the Tamils.

Kanakasabai Pillai's Tamils, 1800 years ago.

K. G. Sesha Aiyar's 'Chera Kings of the Sangam Period'.

Ten Indiya Chirppangal by Kanakarathnam.

S. Vaiyapuri Pillai's History of Tamil Language and Literature.

South Indian Bronzes by Ganguli.

Brown's Indian Painting.

Madras Museum Publications relating to South Indian Temples and Sculptures.

Dr. Swaminatha Aiyar's Introduction in his edition on Manimekalai.

Prof. Chakravarthi Nayanar's Introduction to his translation of Kural and his introduction to his translation of Panchastigaya.

Introductory portions in Popes' translation of Kural, Nalatiyar and Tiruvachakam.

Cultural Heritage of India (Those relating to South India's religion).

Gopinatha Rao's Elements of Hindu Iconography (Only the main headings).

T. V. Kalyanasundara Mudaliar's Works.

P. N. Srinivasachary's Visishtadvaida.

Govindacharya's Divine Wisdom of the Dravidian Saints.

Heritage of India Series.

Lectures on Saiva Siddhanta (Annamalai University).

Ramana Sastry's Introduction to Tirumantiram.

R. P. Sethu Pillai's Kristavat Tamil Tondargal.

R. P. Sethu Pillai's Oorum Perum.

Ananda Coomaraswamy's Dance of Siva.

Dr. M. A. Dorairangaswamy's Religion and Philosophy of Thevaram with special reference to Sundarar.

Alagukkalaikal by Seeni Venkataswami.

Kristavamum Tamilum by Seeni Venkataswami.

Bauddamum Tamilum by do

Samanamum Tamilum by do

Dr. K. K. Pillai's The Suchindram Temple.

Dr. Arogyaswamy's The Kongu Country.

Dr. Arogyaswamy's Irukku Velir.

Dikshitars' Study of Studies in Tamil Literature and History

Dikshitar's Study of Silappadhikaram.

T. V. Sadasiva Pandarattar's Cholas.

Dr. S. K. Aiyangar's Manimekalai in its Historical setting.

Maraimalai Adigal's works.

Papers VII and VIII—Two Optionals:

Optional I: Comparative Literature—Development and growth of the Characteristic features of a Literary Period or a Species of Literature or Individual genus (e.g.)
Sangam Age; Kambar; Epic Poetry or Parani.

Optional II: History of Tamil Grammatical Theories (Elutu or Col.)

Optional III: History of Tamil Prosody.
Tolkappiyam—Ceyyul Iyal.
Yapparungala Virutti.
Yapparungalakkarigai and other works on Prosody.

Optional IV: History of Poetics: Akam or Puram or Rhetoric.

Optional V: Literary Theories as applied to Tamil Literature.

Optional VI: Comparative Dravidian Philology.

Optional VII: General Linguistics with special reference to Tamil.

Optional VIII: Epigraphy and Numismatics with special reference to Tamil.

Optional IX: Palaeography and Principles of editing Inscriptions and Manuscripts.

Optional X: South Indian History.

Optional XI: Aspects of Tamil Culture:

(*a*) Painting, Sculpture, Architecture, Iconography etc. or

(b) Music and Dance; or

(c) Cultural Anthropology or

Opptional XII : With reference to Tamil literature on any one Religion.

Optional XIII : Philosophical Works in Tamil—any one Philosophy.

Optional XIV : Any classical or Modern Language—Indian or Foreign. The Standard to be attained in the language is that of a Pass in a Paper on Modern Literature pertaining to that Language set for the Master's Degree.

Note :—The books recommended under each head are for giving the general principles and general trends of the various aspects and therefore the details therein should not be emphasized. Only the portions relating to need be studied.

Branch VII—Tamil.

Syllabus for Papers VII and VIII.

Optional I: Comparative Literature:

A. Development and growth of the characteristic features of a literary period such as Sangam age, the age of moral epigrams, the age Bakthi poetry, the age of early epics, namely Silappadikaram, Manimekalai and Perunkathai, the age of the epic, the age of the Prabandas, the age of the philosophical and other commentaries, the age of the western contact, modern age etc. etc.

or

B. Development and growth of the characteristic features of a particular species of literature in Tamil such as the epic or the 'parani' or any other kind of 'prabandas' or Drama or various kinds of prose literature etc. in Tamil.

or

C. Development and growth of the characteristic features of any individual genius like Kamban, Bharathi Sekkilar, etc.

Note.—In all these cases a knowledge of a similar development in other parts of India and in other parts of the world, especially in the wertern literature, will be required. A knowledge of various forces working towards such a development shall also be necessary.

Reading suggested:

Moulton—Modern study of literature.

Galey and Scot—An introduction to the methods and materials of Literary Criticism.

Thorough study of the literature of the age or the author of the 'prabanda' selected is necessary.

OPTIONAL II: *History of Tamil grammatical theories*:

A. Eluthu:

The methods of study in various theories of authors of grammars like Tolkappiar, Bavananthi etc. and of the commentators like Ilampuranar, Nachinarkkiniyar, Sivagnana Munivar, Caldwell, etc.

Phonetics, Syllabification, the phonemic system, the initial, medial and final sounds, clusters, kinds of syllables, etc.

Theory of Sandhi and other changes, peculiarities of pronunciation, phonology and history of sound system, the theory of an unchanging grammar.

A thorough study of the original texts and commentaries is necessary

or

B. Col:

Morphology and Syntax. The methods of study in various theories of authors of grammars like Tolkappiar, Bavananthi etc., and of the commentators like Ilampuranar, Nachinarkkiniyar, Sivagnana Munivar Caldwell, etc.

History of Tamil Morphology and Syntax: Theory of compounds declensions conjugations classifications of words, Root Morpheme, suffixes, varieties of analysis, allomorphemes and Mayakkam. Tolkappiar's approach, Bavananthi's contribution, contributions of Beschi, Caldwell, Sivagnana Munivar, etc.

A knowledge of the grammatical verses and various commentaries is expected.

OPTIONAL III: *History of Tamil Prosody*:

Tolkappiam ceyyuliyal and its commmentaries by Ilampuranar, Nachinarkkiniyar and Peraciriyar and a criticism thereof:

Yapparungalakkarigai and Yapparungala Viruthi, Vira Chozhiyam and its commentary on Yappu-p-padalam.

Cidambara c-ceyyut kovai; Maran Pa, Pavinam; Tonnul Vilakkam—Yappu-p-padalam; Ilakkana Vilakkam and Muthu Veeriyam on prosody.

Palcantha Parimalam by Virabadhra Mudaliar.

The Rhythms of folk songs and sindhus.

Music and versification; Modern experiments in free verse, conception of Rhythm in poetry, Sindhu, Tiruppugal, etc.

Foreign versification in Tamil.

OPTIONAL IV: History of Poetics:

I. *Akam:*

Conception of Akam poetry in Tolkappiyam—Its development and variation in Sangam Literature—Mutal, Karu, Uni—Its relation to the kinds of poetry—modification in later days.

Comparison of Iraiyanar Akapporul, Nambi Akapporul, Ilakkana Vilakkam, Vira Chozhiyam, Tonnul Vilakkam, Muthu Viriyam.

A history of Akam poetry and a history of the grammar of Akams poetry.

Akam poetry and subjective poetry. Tirukkovai, Pandikkovai, Tanjaivanan Kovai, Kalavuppadalam in Tanigaipuranam, etc., and Modern writers.

Conception of Anthology or Togainilaicceyyul.

II. Puram:

Conception of Puram in Tolkappiyam. Its development and variations in Sangam Literature. The difference between Tolkappiar and later day writers, like the authors of Purapporul-venba malai, Ilakkana vilakkam, Tonnul, Muthuviriyam and modern writers.

The relation of other kinds of poetry to Puram.

History of Puram poetry and a History of the grammar of Puram.

Conception of Togainilaicceyyul.

Puram poetry and dramatic monologue.

Puram poetry and objective poetry.

Puram as in Silappadikaram and other epics.

III. Rhetoric or Figures of Speech:

Traces of these in Tolkappiyam and Sangam Literature.

The Criticism of the commentators.

Their enumeration in Nigandus.

Dandi Alangaram and its importance.

Its relationship with Ani Iyal.

Importance of Dandi, Vira Chozhiyam; Tonnul Vilakkam, Ilakkana Vilakkam, Muthu Viriyam, Visagapperumal Iyer's Ani Ilakkanam and Kuvalayanandam.

A Criticism of the school of the figures of speech.

Importance of Dvani—Dvani Vilakku.

Contribution of the study of Western Criticism.

OPTIONAL V: Literary theories as applied to Tamil Literature:

Application of the principles in the following books:

1. Richards : Literary Criticism and Practical Criticism.
2. Hudson: Introduction to Literature.
3. Saintsbury: History of Criticism.
4. S. Kuppusamy Sastri: Bye ways and Highways in Literary Criticism.
5. Aristotle: Poetics.

Detailed study of these books is not expected; they have been recommended only to indicate the scope of study.

OPTIONAL VI: Comparative Dravidian Philology.

Reading suggested:

1. Linguistic Survey Vol. IV.
2. Caldwell's Comparative Grammar.
3. Jules Block: Grammatical structure of Dravidian languages.
4. Proto Dravidian phonology.

A knowledge of the structures of Tamil, Telugu, Kannada, Malayalam, Tulu, Kudagu, Ollari, Pargi, Kolami, Kui, Kurkh is required.

Principles of comparative method.

These books have been recommended only to indicate the scope of study; detailed study of them is not expected.

OPTIONAL VII: General Linguistics:

Phonetics—Phonemics—Morphemics (including syntax)—Semantics—comparative and historical linguistics.

Reading suggested:

1. Readings in American Linguistics.
2. Otto Jespersen—Language.

3. Hawkett's Introduction to Linguistics.
4. Hoffner—Phonetics.
5. Vendryes—Language.
6. M. Breal—Semantics.
7. Picket—Introduction to Morphology.
8. Bloomfield—Language.
9. Ogden and Richards—Meaning of Meaning.
10. Ogden and Richards—Meaning and change of Meaning.
11. Chase—Tyranny of words.
12. Tolkappiyam.
13. Nannul.

Questions based on a detailed study of these books are not expected to be set. They have been recommended only to indicate the scope of study.

OPTIONAL VIII: *Epigraphy and Numismatics with special reference to Tamil*:

1. Madras Museum Publications: Introduction to Study of Inscriptions by Sivaramamurthy.
2. Pandai-t-tamil Eluttukkal—T. N. Subramanyam.
3. Coins of South India —Elliot.
4. Oriental Manuscripts Library publications: Mackenzie's collections of South Indian Inscriptions.

OPTIONAL IX: *Paleography, etc*:

Syllabus to be supplied if required.

OPTIONAL X: *South Indian History*:

Syllabus same as for optional group A (4) or 10 of group A Branch I.

OPTIONAL XI: *Aspects of Tamil Culture*:

A. Painting, etc:

Reading Suggested:

1. P. Kothandaraman: India Oviyakkalai.
2. Smith: History of Fine Arts.
3. Browne: Indian Architecture.
4. Browne: Indian Painting.
5. Kramniscs: Indian Sculpture.

6. Kramniscs: Art of India through the ages.
7. Ananthakumarasamy: Arts of India and Indonesia.
8. Ganguly: South Indian Bronzes.
9. Gopinatha Rao: Hindu Iconography.
10. Kanakarathinam: Ten Indiya Sirppangal.
11. Madras Museum Publications: On South Indian Temples and Bronzes.
12. Archaeological Department's book on Mahabalipuram Kailasanathar Temple, etc.
13. Dubreuill's Pallavas' culture, South Indian Architecture, etc.

B. Music and Dance:

Syllabus to be drawn if required.

or

C. Cultural Anthropology:

Development of group life: hunting; pastoral and agricultural stages of life; grouping of villages.

Forms of social organizations the family, the tribes, the clan, the joint family. Matrilineal and Patrilineal societies. Rules of descent inheritance and succession.

Kinship grouping: descriptive and classificatory systems of relationship, marriage classes: dual organisation Kinship uages Parent/in/Law taboos.

Early history of marriage, Forms of marriage, monogamy, polygamy, polyandry, Means of acquiring a mate, dowry and bride price; Laws regulating marriages, enjoined and prohibited marriages, Exogamy, an endogamy; Marriage ceremonies and their functions, Divorce.

Sexual life, Birth ceremonies, Naming of children, Puberty and initiation ceremonies.

Clubs and associations.

Treatment of the dead and funeral ceremonies.

Primitive religion; preanimistic religion; mana and taboo; animism, fetishism, totemism, ancestor worship and cult of the dead, Magical and religious practices; Sympathetics and symbolic magic.

Law and justice, customary nature of primitive law, Blood feed chiefs of headman in primitive society, property land tenure, primitive communism.

Mythology, Folklore and Folksongs, Folk-dances, Amusements and recreations. Children's games, Agricultural and seasonal ceremonies or festivals.

Primitive material culture, procuring of food, cultivation and domestication of animals, primitive methods of agricultural hunting and fishing implements, Domestic arts and crafts, pottery, basketry, spinning and weaving, metal working. Fine making appliances, weapons, methods of Transport.

Decorative arts, personal ornament and decoration, artificial deformation or mutilation of the person, clothing, Habitation, Music and musical instruments.

Primitive trade, barter, currency. Modes of reckoning time.

Note.—In addition to a broad general survey of primitive sociology and culture, a detailed study should be made of a selected primitive tribe of India for which literature is available.

Tribe for special study:

***Books prescribed*:**

1. R. H. Lowie: Introduction to cultural Anthropology(Harrap, London).
2. Horniman Museum and Library Series:
   (1) Evolution of Domestic Arts Parts I & II.
   (2) War and chase.
3. R. V. Sayce: Primitive Arts and Crafts (Cambridge University Press, 1933).
4. Carlton S. Conn: Reader in General Anthropology, New York, 1949.
5. W. H. R. Riners: Social organisation.
6. F. Boas: General Anthropology.

British Association for the Advancement of Science-Notes and Queries in Anthropology.

***OPTIONAL XII*: *Saiva Religion*:**

***Part I*:**

References in Sangam Literature.

12 Tirumurais—Thayumanavar—Ramalingar—Tiruppukal.

History of Saiva Literature in Tamil.

The Saiva Mutts and their contribution.

Veera Saivites and others and their contribution.

Reading suggested:

Works on Saivism by Maraimalai Adigal, Thiru Vi. Ka., Subramania Pillai and A. Nallasami Pillai.

Saiva Samaya Valarchi by Dr. M. Rajamanickam: Saiva Ilakkiya Varalaru by Avvai Duraiswamy Pillai

Part II: *Study of classics*:

Akattiyar Tevarattirattu.
Tirumurukarruppadai.
Tiruvasakam—Tiruocatakam.
Ramalingar—Upadesappakuti.
Tayumanavar—1st 50 verses.
Chidambara Swamigal—Tirupporur Sannidhi Murai, 1st 50 verses.

Vaishnava Religion:

Part I:

References in Sangam Literature to Vishnu.

Nalayira Prabantham.

The mutts, the Acharyas—history of Vaishnava Literature in Tamil.

The Manippravala Style.

Part II:

Special study of the commentaries on Tiruppavai.

Kanni Nun Siruthambu, Tiruppallandu, Tiruppanalwar and the 10 verses beginning with 'Uyar Vara Uyar Nalam'

History of various schools of vaishnavite philosophy.

Reading suggested:

1. Bandarkar's Vaishnavism, etc.
2. Rajagopalachari's Vaishnava Saints.
3. S. Krishnasami Iyengar—History of South Indian Vaishnavism

OPTIONAL XIII

A. Advaita:

Part I:

1. History.
2. Its theory of knowledge, Metaphysics, Ethics.
3. Criticism.

Part II—Study of Philosophical classics:

1. Sasivarna botham.
2. Nanajeeva vathakkattalai.
3. Kaivalya Navaneetham.
4. Visara sagaram.
5. Battar's translation of Gita.

Readings suggested:

1. Radha Krishnan's—Indian Philosophy.
2. T.M.P. Mahadevan's—Philosophy of Advaita.

B. Visishtadvaita:

Part I:

1. History.
2. Its theory of knowledge, Metaphysics, Psychology, Ethics and Religion.
3. Criticism.

Part II—Study of Philosophical Classics:

1. Desika Prabantham (Tamil).
2. Srivasana Bushanam.
3. Acharya Hirudayam.
4. Pillai Lokacharya's other Manipravala works.
5. Desikar Manipravala works.

Reading suggested:

1. P. N. Srinivasachar's—Philosophy of Visishtadvaita.
2. Das Gupta's—History of Indian Philosophy.
3. Radha Krishna's Indian Philosophy.
4. Bandarkar's—Vaishnavism, etc.
5. Pillai Lokacharya's and Desikar's manipravala works.

C. Saiva Siddhantha:

Part I:

1. History.
2. Its theory of knowledge, Metaphysics, Ethics, Religion and various sects.
3. Criticism.

Part II—Study of Philosophical classics:

1. Sivagnana botham with Sivagnana Swamigal's commentary
2. Fourteen Saiva Siddhantha Sastras.
3. Sivabogasaram.
4. Mukthinichayam.
5. Gnanamirtham.

Reading suggested:

1. Srikanta Bhashyam—Translated by Senthinatha Iyer.
2. Suryanarayana Sastry's Sivadvaita of Srikanta.
3. Woodroffe—Sakthi and Saktha.
4. Chatterjee—Kashmir Saivism.
5. Paranjothi—Saiva Siddhantha.
6. Piet—A logical presentation of Saiva Siddhantha.
7. Bandarkar—Vaishnavism, etc.
8. Radha Krishnan—Indian Philosophy.
9. Ponniah's Theory of Knowledge and Saiva Siddhantha.
10. Annamalai University Publications—Lectures on Saiva Siddhantha.

D. *Buddha Philosophy:*

Part I:

1. History.
2. Its theory of knowledge, Metaphysics, Ethics, Religion
3. Criticism.

Part II—Study of Philosophical classics:

1. Mani mekalai.
2. Verses on Buddha in Vira Chozhiyam.

Reading suggested:

1. Eliot—Buddhism and Hinduism.
2. Rhys Drvid's—Buddhism.
3. Radha Krishnan—Indian Philosophy.
4. Manimekalai in its Historical setting by Dr. S. Krishnasamy Iyengar.
5. Nyaya Pravesa.

E. Jain Philosophy:

Part I:

1. History.
2. Its theory of knowledge, Metaphysics, Ethics and Religion.
3. Criticism.

Study of Philosophical classics:

1. Nila Kesi
2. Chintamani—Mukthi Ilambagam.
3. Choolamani—Turavuccarukkam.
4. Sripuranam.

Reading suggested :

1. Outlines of Jainism—by Mohanlal Mehta.
2. Radha Krishnan—Indian Philosophy.
3. Religion of Ahimsa by Prof. Chakravarthi Nainar.
4. Thirupparuthi Kundram by T. N. Ramachandran.

OPTIONAL XIV:

Any classical or modern language.

Syllabus same as for paper V for English.

Paper III for Sanskrit section A.

Paper II for Arabic

Paper II for Persian.

Paper II for Urdu.

Paper III for Hindi.

Paper III for Marathi.

Paper II for Telugu.

Paper II for Kannada.

Paper II for Malayalam.

Note.—The maximum for each of these papers when answered by Tamil students shall be 175 marks.

Branch VII—Telugu

A. History of Telugu Language.

General :

1. The place of Telugu in the Dravidian family of Language; its affiliation and relationship with the other members of the family.

2. The antiquity and the geographical distribution of the Telugu language and the people; the linguistic neighbours of the Telugus.

3. The origin and meaning of the words :—Telugu, Telugu and Andhra.

4. The influence of Sanskrit and Prakrt on Telugu.

II. *Periods denoting the growth of Telugu.:*

1. *Pre-Nannayya Period :*

(*a*) Telugu words and Place names in Sanskrit and Prakrt Inscriptions upto the end of the 6th Century A.D.

(*b*) Telugu in the Inscriptions in prose and verse of the 7th to the 11th century A.D.

2. *Period of Nannayya :*

Telugu in Literature and in the Inscriptions of the Period in prose and verse ; a study of the structure of the Language.

3. *Post Nannayya Period :*

(*a*) Development of poetic dialect.

(*b*) Development of the language as noticed in the works of Saiva poets—Janu Telugu.

(*c*) The origin and development of Telugu Grammars beginning with Katana's Andhra Bhasha Bhushanam.

(*d*) Later Poetic dialect from the Age of Krishna Devaraya and the extent to which the growth of the poetic dialect was noted in the grammars and poetics of the later period.

4. *Development of Telugu Prose :*

Its early stages as noticed in the contemporary inscriptions and in the Vachanams in Prabandhas. Prose works at Madura and other places in the South. Contributions to Telugu prose by the Padits of the age of C.P. Brown. Chinnayya Suri's Prose, an innovation, followers of Chinnayya Suri. Veerasalingam's Prose. The Modern Telugu movement as a revival of the traditions previous to Chinnayya Suri; its conflict with the classical school and ultimate success. Mordern Telugu Prose in various patterns of Literature as a vehicle of modern thought.

5. *Language and Dialects :*

Dialects relating to different localities and to different classes of people in the same locality. The presence of dialectal forms in the Kavya (Poetic) literature and their recognition by grammarians and lexicographers.

6. *Vocabulary :*

The native element, the so called Achcha Telugu words ; Words borrowed from Sanskrit (Samskrta sama and Samskrta bhava) and from Prakrta (Prakrta sama and Prakrta bhava), words borrowed from other Dravidian languages, from other Indian languages such as Maharashtra, Oriya and other Gandian Languages, from Arabic and Persian languages of the Middle-East and from English, French and other foreign languages.

7. *Word building :*

Compounds and words with prefixes and suffixes.

8. *Semantics :*

Changes in meaning and usages in Telugu words—elevation and degradation. Samskrt words used in Telugu with varying shades of meaning and slightly or widely different meanings Obsolete and Obsolescent words.

9. *Special feature of the Telugu language :*

Arthanusvara ; Sakata repha ; accent in Telugu speech and metre. Sandhi—its nature and history ; gasada deva desa and Sarstadesa ; formation of plurals and their history; Case and Anpavibhaktika features; Telugu compounds as distinct from Samskrt compounds verbal forms and derivative words. Karaka and syntax.

B. Comparative Philology.

1. DRAVIDIAN LANGUAGES :

Origin of the word Dravidian. Enumeration of the Dravidian languages, cultivated and un-cultivated. The regions where the principal Dravidian languages (Tamil, Telugu, Kannada and Malayalam) are spoken. Their varying realtionship with Samskrt. Dravidian element in the North Indian Vernaculars.

2. DRAVIDIAN ALPHABETS :

The origin and growth of script. The Telugu-Kannada form and its relation to Brahmi, Vengi and Chalukya scripts. A comparison of the Dravidian scripts—their adequacy and inadequacy. The sound values and the phonetics nature of the alphabet.

3. DRAVIDIAN PHONOLOGY (FUNDAMENTALS OF):

a. Vowel system—Harmonic sequence of vowels.

b. System of Consonants — Telugu pronounciation of Palatals and how it differs from that of Tamil; Origin of Cerebrals; Dialectal interchange of Consonants.

c. Euphonic nunnation or nasalisation.

d. Prevention of Hiatus.

e. Dravidian syllabation.

f. Euphonic displacements of consonants and of vowels.

4. ACCIDENCE:

a. *The Noun:*

1. Gender—differenece between Dravidian and Samskrt use, of words to denote gender. Dravidian nouns divided into two classes denoting rational beings and irrational things (mahat and amahat).

2. *Number:*

Singular and plural, no dual in Dravidian languages, sex distinction in singular, but not in epicene plural; pluralising particles—neuter and epicene; double plurals.

3. *Case:*

Principles of case formation. Dravidian case and comparison with Samskrt cases. Case signs, words, post-positions, particles etc. in Telugu and other Dravidian languages. The real and oblique case.

Comparative Paradigm of a Neuter Dravidian Noun (pp. 319-320, Caldwell).

b. *The Adjective:*

Substantives, used as adjectives; formation of adjectives from substantives, relative participles of vowels. Degrees of comparison.

c. *The Numerals:*

Derivation of numerals from one to ten; of 100 and 1,000. The numeral adjective and substantive Cardinals and ordinals.

Dravidian Numerals in the Five Principal Dialects. (Table p. 358 Caldwell).

d. The Pronoun :

Importance of pronouns as throwing light on the affinity of language and families of languages. Persistence of Persona pronouns especially those of the first and second persons singular. The reflexive pronoun—the origin of *Tana* and *Tama* (of SKT. atman).

Dravidian Pronoun of the First Person and the Second Person.

(Tables pp. 316 and 317, Caldwell).

Demonstrative and Interrogetive Pronouns—Adjectives and Adverbs.

Honorific Demonstrative Pronouns.

e. The Verb :

Structure and nature of the Dravidian Verb. The significance of "root" theory—Transitive and intransitive verbs; Causative verbs and their function. Conjugational system; Tenses—their significance—the Present, Preterite and Future Tenses ; Moods—the infinitive, imperative, benedictive and conditional; Voice—Active and Negative; Combination of Negative particles with verbal themes ; Passive voice due to Samskrt influence.

(Tables pp. 555-564, Caldwell).

f. Verbal Nouns and *Adverbs :*

Their formation and use.

6. *Syntax :*

Fundamental features of syntax, peculiar to Dravidian languages—of Telugu in particular.

Books recommended :

(*a*) *For study :*

1. Caldwell : Comparative Grammar of Dravidian Languages.
2. K. Ramakrishnaiya Studies in Dravidian Philology.
3. K. V. Subbayya's Dravidic Studies 1-4.
4. G. J. Somayaji : Andhra Bhasha Vikasam.

(*b*) *For consultation :*

1. Ch. Narayana Rao : History of Telugu Language.
2. Seshagiri Sastry : Studies in Philology.
3. Sweet : History of Language (Temple Primer Series).

4. Jesperson : Language, its origin, theory and development.
5. S. K. Chaterji : Introduction to the origin and development of Bangali language (pp. 1-140).
6. Bloomfield : Introduction to the study of Language.
7. Kalinga Sanchika, published by the Andhra Historical Research Society—Telugu Language in Inscriptions and Literature by G. V. Sitapati.
8. N. Venkatarao's Andhra vachana rachana parinamam.

History of Telugu Literature.

I. Pre-Nannaya Age :

Verses in Inscriptions such as Addanki, Chalukya Bhima and Yuddhamalla inscriptions.

II. Age of Nannaya :

1. A short history of the Eastern Chalukyas, Andhras and the works in Karnataka language. Some Jain works; Jinendra Purana of poet Padma; Adipurana of Sarvadeva, the place of Nannaya in Telugu Literature. The Mahabharata as the Fifth Veda. Nannaya's method of translation; his personality and style.
2. Definition of Marga and Dasi kavita—mentioned in Nannichoda's Kumara Sambhavam.

III. Sivakavi yuga :

1. Definition of Virasaiva; its origin and development; Basaveswara and Jangama Cult; his life and contribution to Virasaiva Cult. Panditaradhya and Aradhya Cult; his life and teachings; Sivatatva sara—a work of Aradhya Cult.
2. Palkuriki Somanatha; his life and works : Basava Purana and Panditaradhya Charitra, the earliest Dvipada Kavyas.
3. Other Saiva Poets : Nannichoda and his Kumara Sambhava; Yadhavakkula Annamayya and his Sarvesvara Sataka.
4. Beginnings of Dvipada, Sataka, Udaharana types of literature.

IV. The age of Tikkana :

1. Social and political condition of the country.
2. Tikkana as a man, minister and poet; his Nirvachanottara Ramayanam; his method of translation of the Mahabharata; his Hari-Haranatha Cult.

   Other poets of the age : Ketana, Marana and Manchena.

V. The Age of Errana :

1. The beginnings of Reddi Kingdom.
2. Prolayavema as the patron of Telugu literature.
3. Errana's works : The Mahabharatam, Narasimha Puranam, The Ramayanam and Harivamsam, and their place in Telugu literature.
4. Nachana Somana's Uttara Harivamsam.
5. Other poets of the Age and their works : Ranganatha Ramavanam and Bhaskara Ramayanam.

VI. The age of Srinatha :

1. Srinatha's life and works, his patrons; his method of adaptation and translation with special reference to his Sringara Naishadham ; his style and personality.
2. Vallabharaya and the controversy about Kridabhiramam.
3. Other poets of the age : Nissanku Kommana, Madiki Singana, Jakkana, Ananatamatya, Dagguballi Duggan (author of Nasiketopakhayanam), Bammera Potana, Pillamarri Pina Virabhadrudu, Gaurana, Nandi Mallayya and Ghanta Singaya.
4. Tallapak Annamaya, author of Pdamas, Prelude to the Growth of Vaishnavism.

VII. The age of Krishnadevaraya:

1. Social and political condition of the age.
2. Krishnadevaraya as the patron of Telugu Literature and as poet and author of Amuktamalyada.
3. The Ashtadiggajas ;. Allasani Peddana, Nandi Timmana, Madayagari Mallana, Dhurjati, Tenali Ramalinga, Chintalapudi Yellana, Ramabhadra Kavi and Kandukuri Rudrakavi.
4. Other poets of the age : Sankusala Narasimhakavi, Pingali Suranna, Ramarajabhushana, Ayyalaraju Ramabhadrudu, Chadalavada Mallana, Tarogoppula Mallana, Charigonda Dharmana, Saranga Tammaya, Ramaraju Rangapparaju, Matla Ananata Bhupaludu, Savaramu Chinanarayananayaka and their important works.

VIII. Age of Nayak Kings of Dakshinandhra:

1. Political and social conditions of the Age, and the spread of Telugu into the South.
2. Raghunatha and Vijayaraghava of Tanjore and an estimate of his works.

3. Chemakuri Venkata kavi and Krishnadhvari.
4. Takshaganas and their place in Telugu Literature.
5. Chengalva Kala kavi and others of the time of Vijayaraghava.
6. Patronage of Maharashtra kings : Sahaji, Sarabhoji, Tulajaji and their works.
7. Poetesses of Dakshinandhra : Ramabhadramba, Madhuravani Rangajamma and Muddu Palani.
8. Madura as the seat of Telugu Literature: Srikameswapa Kavi, Sesham Venkatapati, Samukham Venkata Krishnappa Nayaka.
9. An estimate of Vijayaranga Chokkanatha's prose works.
10. Pudukotta as the seat of Telugu Literature : Raghunath Tondaman's Parvati parinaya, Nudurupati Venkana and his works.
11. Mysore as the seat of Telugu Literature: Kaluva Viraraju and his Mahabharata in Prose.
12. Tupakula Anantabhupala and his prose works.

IX. Later Prabandha Age :

Kuchimanchi Timma kavi and Jagga kavi, Kankanti Paparaju, Pushpagiri Timmana, Gokulapati Kurmanatha kavi, Adidam Sura kavi, Tarigonda Venkamamba, Pindiprolu Lakshmana kavi, Sishtu Krishnamurti.

X. Modern Age:

Influence of the English and other foreign languages and literatures and Western culture. Age of Kandikuri Virasalingam ; Age of modern Telugu movement.

XI. Development of different types of Literature (Past and Present):

(*a*) *Past :*

Udharana Vangmayam.

Sastakas : Sumati, Vemana, Bhaskara etc.

Dvipadas.

Yakshaganas.

Ballads.

Technical subjects such as Pavuluri Ganitam, Ketana's Vijnanesvaram, Manumanchi Bhattu's Hayalakshana Vilasam, Geyavangmayam—Sankirtanas and Padas ; Kshetraya and Tyagaraja.

(*b*) *Present :*

Short poems of romanticism, realism and sur-realism, dramas and one-act plays, novels and short stories, Essays, Literary Criticism, Biography and autobiography; journalistic literature, Children's literature and geyas.

B. Literary Criticism and Poetics.

1. Sahitya vimarsanam traditional literary criticism in 'Telugu' prior to the influence of English literary criticism.
2. Modern literary criticism on Western lines.
3. Critic and his qualifications : his attitude towards works of art, his standards of judgment, internal and external interpretation and evaluation, sympathy and reverance (without jealousy or rivalry).
4. Sahitya lakshanam : Poetry and Prose; Eastern and Western conception of literature.
5. Rasa : its nature and definition, subjective and objective aspects, theories relating to Rasavada, Alankara, Dhvani, Riti, place of Rasain Dhvani, illustrations from Standard Telugu Classics.
6. The characteristic features of Art, Artist and Art Critic. An estimate of the statement—Art for the sake of Art.

Books recommended for reference:

(*a*) *For study:*

1. Viresalingam : Lives of Telugu Poets.
2. Kavitva Vedi : Andhra Vangmaya Charitra Sangraham.
3. Chenchaiah and Bhujangarao : History of Telugu Literature (Heritage of India Series).

(*b*) *For consultation:*

1. Vanguri Subbarao: Andhra Vangmaya Charitra and Satakavula Charitra.
2. Chaganti Seshaiah: Andhra Kavitarangini.
3. Dr. G. V. Krishnarao: Studies in Kalapurnodayam.
4. Rajarajanarendra Sanchika: Published by Andhra Historical Research Society, Rajahmundry.
5. Kalinga Sanchika do
6. Kakatiya Sanchika do

7. N. Venktarao: Lives of Telugu Poets.
8. N. Venkatarao: Southern school in Telugu Literature.
9. N. Venkatarao: History of Udaharana Literature.
10. Hudson : Introduction to the Study of Literature.
11. Winchester : Principles of Literary Criticism.
12. Worsfold : Principles of Literary Criticism.
13. Lamborn : The Rudiments of Criticism.

Grammar, Prosody and Poetics.

No syllabus is prescribed. The following books are recommended:

(*a*) *For detaild study :*

1. Balavyakaranam.
2. Praudha vyakaranam.
3. Appa Kaviyam: Canto 3—Vavilla Edition.
4. Narasabhupaliyam with Sannidhanam Suryanarayana Sastry's commentary—Rasaprakaranam.
5. Kuvalayananda Saram by K. S. Sastry, Tirupati.

(*b*) *For General Study*:

1. Balakavi Saranyam by G. V. Ramamurti (Published by Visalandhra Publications.)
2. Anantachhandas (Chandodarpanam by Anantamatya).
3. Sarvalakshanasarasangraham by Kuchimanchi Timmakavi.

Branch VII—Kannada

Paper I.—Prosody, Poetics and Literary criticism :

1. Chandombudhi by Nagavarma.
2. Kaviraja marga excluding Alamkara Portions.
3. Apratima Vira Charite by Thirumalarya.
4. Bharatiya Kavya Mimamse by T. M. Srikantiah.
5. Rasa Ratnakara by Salva.
6. Sahitya Charitre by Dr. Mugali.

For reference :

1. Kavi Charitre by R. Narasimhachar.
2. Ananda Vardhanana Dhwanyaloka (Introduction) by Dr. Krishnamurthy (Sharada Mandira, Mysore).

3. Indian Poetics by—P. V. Kane.

In addition, the following books are recommended for indicating the scope of Literary Criticism:

4. Introduction to the study of Literature—Hudson.
5. Literary Criticism by I. A. Richards.
6. Principles of Literary Criticism by Winchester.
7. History of Criticism by Saintsbury.

Paper II—Modern Literature :

1. Manku Thimmana Kagga by D. V. Gundappa.
2. Gari by Bendre.
3. Pancha janya by Kuvempu.
4. Samastha Bharata Sara by Thimmappayya.
5. Brahma Vadini by C. K. Venkataramayya.
6. Maralimannige by K. S. Karanth.
7. Bevu-Bella by Ananda.

Paper III :

History of Karnataka and Culture—Scope of which is indicated by the following books :—

1. South Indian History by Prof. K. A. Nilakanta Sastri.
2. History of Vijayanagara by Dr. Saletore.
3. Early History of the Dekkan by Bhandarkar.
4. College Text-book of Indian History, Vol. I by R. Satyanathan.
5. Kadamba Kula by Moreas.
6. Kannada Inscriptions edited by M. M. Bhat (Published by the University of Madras.)
7. Karnataka Gata Vaibhava by Alur Venkata Rao.
8. Karnataka Culture by Masti Venkatesayyangar.
9. Kannada Nadina Charitre—3 Vols. (Kannada Sahitya Parishat, Bangalore.)
10. Heritage of Karnataka by Mugali.
11. A History of Fine Arts in India and Ceylon (II Edition, Chapters VII and VIII, Parts I and X) by Smith.

Paper IV—Prescribed Text-books I :

1. Pampa Bharata (Aswasas 13 and 14).
2. Ramachandra Charita Puranam (Aswasas 4 and 5.)
3. Girija Kalyana (Aswasas 9 and 10).
4. Jagannatha Vijaya (Aswasas 12 and 13).
5. Rajasekhara Vilasa (Aswasas 13 and 14).

Paper V—Prescribed Text-books II :

• 1. Bharatesa Vaibhava (Part I—Bhoga Vijaya)
2. Bhishma Parva (Kumara Vyasa Bharata).
3. Harischandra Kavya Sangraha (Mysore University Publication.)
4. Ramaswamedha (Muddana).
5. Veni Samhara Nataka (Pratikirti M. Sitarama Sastry).
6. Mitra Vinda Govinda (Singararya).
7. Haribhakti Sudha (R. R. Diwakar).
8. Basaveswara vachanagalu (by Halegatt).
9. Bhava gitegulu (Edited by Betageri Krishna Sarma).

Paper VI—Grammar, Descriptive Linguistics, Comparative Grammar and History of Language :

1. Sabdamanidarpana by Kesiraja.
2. Bhasa Shastra by Dharwadkar.
3. History of Kannada Language by R. Narasimhachar.
4. Kannada Kaipidi—Chapters on History of Language.
5. Comparative Grammar of the Dravidian Languages by Caldwell.
6. Grammar of the Oldest Kannada Inscriptions by Dr. A. N. Narasimhayya.
7. Historical Grammar of Old Kannada by Dr. G. S. Gai.
8. The Grammatical Structure of the Dravidian Languages by Jules Bloch.

Paper VII : Ranna—Special Study.

Paper VIII : Optional—Any other language including English. (If the language chosen is an Indian language, it should be of the B.A.—Part II Standard : if it be English, it will be a paper on Modern English Literature of the M.A. Standard.)

Branch VII—Malayalam

Paper I :—Prosody, Poetics and Literary Criticism.

(*a*) *Prosody* :—Rhythm and metre. How far is metre an essential requisite of poetry. The relation between Bhava and metre.

Sanskrit and Dravidian metres. The Lakshanas of all important Sanskrit and Dravidian metres. The fundamental principles of metrical composition and the evolution of new metres in Malayalam.

(*b*) *Poetics* :—Chamatkara—Arthachamatkara and Sabdachamatkara—Arthalankaras, their classification—The points of resemblance and variation between closely similar alankaras—The encroachment of the Alankara school of thought on Dhwani—Sabdalankaras—their role in Riti.

(*c*) *Literary Criticism* :—The nature and scope of fine arts. The useful arts and the fine arts. Fine art as imitative art—what does it imitate? The medium of art—Literature as the best among the fine arts—The aim of fine arts—Art and Life.

The classification of literature according to form—Poetry, Prose and Drama.

Poetry :—Folk songs, Ballads—The Epics, lyrics, muktakas and the geetakas.

Prose :—Ancient prose—Chakyar prabandhas and attaprakaras—The commentaries on Sastrik works like Jyotisha, Ayurveda, Thachu Sastra, Artha Sastra—Christian prose literature, etc.

Modern Prose :—The novel, the short story, the essay, the biography, travel and exploration literature, modern scientific treatises.

Drama :—Translations of standard Sanskrit dramas, musical dramas, prose dramas, farces, radio plays. The Kathakali and other dance dramas. Prose renderings of English, Sanskrit and other Indian dramas.

Types of literature or Prasthanas :—Ancient and mediaeval Pattus—Manipravala works (Sandesa, Attakkatha, Champu), Kilipattu, Tullai Stotra literature.

Modern :—The Mahakavya, Khanda Kavya, Shorter poems (Cherukavitakal), geetakas and muktakas. The northern ballads.

General :—Pada doshas, vakya, doshas, the theories of Dhwan and Rasavedalankaras—The Dhwani school of literary criticism—

The alankara and Riti schools of literary criticism—The Gunas—Vrittis—Theoris of Auchitya and Vakrokti—Later Sanskrit critics—Mammata, Viswanatha and Jagannathapandita.

Western literary criticism—The Aristotelian theory of Art—Mediaeval and Modern English critics.

Paper II :—Prescribed Text-books. Modern literature—Prose and Drama.

Prose texts and prose dramas only will be prescribed under this. Prescriptions may be representative of the various important types of Modern prose literature mentioned above.

Paper III :—History of Kerala culture and inscriptions.

(a) The outlines of political history of Kerala from early to modern times should be studied only to serve as a back-ground for understanding the cultural history of the land.

Political institutions :—The various 'Kuttams'—The authority of the king being controlled by these Kuttams—The mamamkam—Brahman domination—the important royal families and their contribution to Kerala culture.

Literature and other fine arts :—The Chakyar arts—Kuthu, Kootiyattam, Pathakam, Sanghakkali, Krishnattam, Kathakali, Mohiniyattam, Thirayattam etc. Kaikottikkali, Music—Vocal and instrumental. Architecture and painting.

Trade, commerce and foreign relations—The Malayalees as early navigators—The Portuguese, Dutch and the English.

The Kalari—Physical culture and martial training—The national festivals—matriarchal system—land tenure and economic condition. The temple as the centre of social activities.

The Ezhavas, the Jews, the Muslims and their contribution to Kerala culture—Foreign travellers and visitors—Their views on Kerala—Kerala in Skt. and Pali literature—Buddhism and Jainism in Kerala—The religious history of Kerala—Sri Sankaracharya.

(b) *Inscriptions* :—All the selected Malayalam inscriptions published by the University of Madras are to be studied with special stress on the linguistic, historical and cultural aspects.

Poper IV.—Prescribed Text-books I :—Pre—Ezhuthachan period—Prose and Poetry before Ezhuthachan.

Paper V:—Ezhuthachan and Post-Ezhuthachan. Poetry, attakkatha etc.

Paper VI:—Grammar, History of language and Philology:—

Grammar:—The contents of Keralapaniniyam and Vyakaranamitram to be studied.

Philology:—General. (1) Introductory. Aim of the science of language—Thought and language. Theories about the origin of language. Comparative and historical methods. Growth of languages.

2. Introductory continued.—Division of the subject. Phonology, morphology. System. Semantics. Linguistic Palaeontology.

3. Sounds.—The organ of speech. The production, classification and receiption of speech sounds.

4. Sounds continued.—Phonetic laws and tendencies. Phonetic changes. Metathesis, prothesis, anaptyxis, haplology, assimilation, dissimilation. Accent, pitch and stress. Application of phonology to etymology.

5. Writing.—Origin and development—Picture, ideographic and phonetic writing. Homophony and polyphony. Syllabism and alphabets. Spelling.

6. Grammar.—Semantemes and morphemes. Prefixes and suffixes. Compound words.

7. Grammar continued.—Grammatical categories. Gender, number, tense, voice. Relativity of grammatical categories—Logical and Psychological classification of the parts of speech.

8. Grammar continued.—The general nature of morphological evolution. Tendencies towards uniformity and expressiveness. Analogy and its work and effect. Contamination.

9. Semantics.—The nature and extent of vocabularies. Particular and immediate value of words as spoken. Arrangement of words in the mind. Word symbolism.

10. Semantics continued.—Changes of meaning in borrowed words. Changes of meaning in cognate languages. Expansion, contraction and transference of meaning. Reasons for changes in meaning. Coining of new words.

11. Structure of languages.—The vareity of languages. Their growth, physical, racial, mental and cultural influence. Dialect,

special language and slang. Standard language. Interrelations of common language and their dialects. Language contacts. How languages die out. Mixed languages and the conditions in which they are built up.

12. Linguistic palaeontology. Its method. Precautions to be observed.

13. Classification of languages.—Syntactical and genealogicals classification of languages. Division of languages (i) inorganic and (ii) organic. Sub-divisions of the organic type (i) incorporating language (ii) agglutinating languages and (iii) inflecting languages. Family characteristics of languages.

14. Classification of languages continued.—Distribution of Indian languages.

Elements of the Comparative Grammar of Dravidian Languages :

1. Introductory.—The Dravidian family of languages—Their chief characteristics—Reason for choosing the word 'Dravidian' as the name of the family—Affiliation of the Dravidian—Theories about the original home of the Dravidian speaking people—Primitive Dravidian languages.

2. Introductory continued.—Enumeration of Dravidian languages Cultivated languages and uncultivated dialects. The names Tamil, Telugu, Kanarese and Malayalam. Where they are spoken and when their literature commenced.

3. Introductory continued.—Relation between Dravidian languages and Sanskrit. Dravidian element in Vedic Sanskrit and in the spoken languages of North India. Earliest extent written relics of the Dravidian languages.

4. Dravidian alphabets.—Their origin and history. Differences among existing alphabets.

5. Dravidian phonology.—Vowel system. Changes. Harmonic sequence of vowels. System of consonants. Dialectic interchange of consonants. Prevention of hiatus. Dravidian syllabation. Minor dialectic peculiarities.

6. Dravidian roots.—Two classes of roots. Reduplication of the final consonant of roots. Particles of specialisation. Changes in root-vowels.

7. Accidence.—(i) Nouns. (a) Gender. Dravidian nouns divide into two classes denoting national beings and irrational things, except

in Telugu. Primitive laws of gender faithfully followed in Malayalam. Comparison between Dravidian languages on the one hand and Sanskrit and English on the other.

(b) Number.—Only singular and plural. Masculine, feminine and neuter singulars. Principles of pluralisation.

(c) Case.—Principles of case-formation. Dravidian cases.

(ii) Adjectives.—The agreement of adjectives with substantives. Formation of Dravidian adjective from Sanskrit derivatives. Formation of adjectives from substantives, relative participles, and past participles, Comparison of adjectives.

(iii) Numerals.—Different views about their origin. The cardinals and ordinals. The neuter noun of number and the numerical adjective.

(iv) Pronouns.—Pronouns of the first and second person singular. Comparison of dialects. Reflexive pronoun. Pluralisation of personal and reflective pronouns. Demonstrative and interrogative pronouns. Demonstrative and interrogative cases. Demonstrative and interrogative adjectives and adverbs. Honorific demonstrative pronouns.

(v) Verbs :—Structure of the Dravidian verbs. Many roots used either as verbs or nouns. Formative particles often added to roots. Classification of verbs into transitive and intransitive. Ways in which intransitive verbs change into transitive Sanskrit analogies.

(*a*) Causative verbs :—Causals formed from transitives. Origin of the Dravidian causal particles.

(*b*) Frequentative verbs.

(*c*) Conjugational system :—Formation of tenses. Verbal participles, their signification and force. The present tense and its formation. The relative participle.

(*d*) Mood:—Methods of forming the conditional, the imperative and the infinitive moods. Origin of the infinitive affix.

(*e*) Voice :—Active and passive voices. The negative voice. Combination of negative particles with verbal themes. The Dravidian negative participle.

(f) Formation of verbal nouns, derivative nouns and abstract nouns.

(vi) Adverbs.

8. Vocabulary :—Borrowing and its causes—social, religious, commercial and political. Borrowings from Sanskrit. Borrowings from other languages.

9. Syntax :—The syntax of the several languages compared. Smilarities and differences. Extent of the influence of Sanskrit over the syntax of the several languages.

Paper VII :—Optional I. Special period, or poet or type of literature.

(*a*) The following periods are suggested :

1. Ezhuthachan and his age.
2. From Venmani to modern poets.

(*b*) The following poets are suggested :

1. Niranam poets.
2. Cherussery.
3. Kunchan Nambiar.
4. Kumaran Asan.
5. Ullur S. Parameswara Iyer.
6. Vallathol.

(*c*) The following types are suggested :

1. Pattukal and Misrabhasha works.
2. Mahakavyas.
3. Champus.
4. Attakkathas.
5. Kilippattu.
6. Thullal.
7. Sandesa Kavyas.
8. Novel.
9. Short stories.
10. Khandakavyas.

Paper VIII :—For those who offer Malayalam as the other language for the M.A. Degree in Dravidian Languages the syllabus will be the same as that for Paper I under Part II for the B.A. Degree examination of the same year.

Branch VIII—Indian Music

Syllabus

Musicology I.

Significance of Bharata's Experiment relating to the Dhruva Vina and Chala Vina.

Cycles of Fifths, Fourths and Thirds. Notes of frequencies bearing septimal ratios.

Ragas which are typical examples of various srutis used in Indian Music.

Murchchanakaraka melas and murchchanakaraka ragas ;

An outline knowledge of the 108 talas. The rare talas suggested by the Tiruppugazh hymns of Arunagirinathar.

Panchadasa gamakas.

Alanakaras of ancient music and the purposes served by them.

The Prabandhas of the Ancient and Mediaeval Periods. Gita Prabandhas, Vadya Prabandhas, Nritya Prabandhas and Misra Prabandhas.

Decorative angas figuring in Kritis and other musical forms.

An advanced knowledge of Musical Prosody.

Rhetorical beauties met with in the sahityas of musical compositions. Yamakam. The different varieties of Prasa and Yati. Padya sahitya and gadya sahitya, Sahityas in bhandira bhasha.

Dvadasa mudras figuring in musical compositions.

Raga and Rasa.

Views concerning the Ganakala of ragas.

A knowledge of the technique of play of Indian concert Instruments.

Resonators in Musical Instruments.—their shapes and function.

Utility of Sound-post, Bass bar, Mute and Damper.

Compound wind instruments.

Keyed instruments and Keyless instruments.—their possibilities and limitations Fingering technique; cross fingering.

Varieties of drones used in Indian Music. Systems of tuning adopted when jodi tamburas are used. Instruments used in Temple rituals. Instruments used in martial music and folk music.

Materials used in the manufacture of musical instruments of ancient, mediaeval and modern periods. Materials used in the manufacture of strings, accessories and parts of musical instruments during those periods.

Harmony, Melody and Polyphony.

An outline knowledge of Staff notation. The scales figuring in the music of other nations.

Musical Stone Pillars—Their colour, dimensions, shapes and utility. The temples where they are seen.

Musical pipes scooped out of Stone Pillars and the temples where they are seen.

Kudumiyamalai Music Inscription.

Geographical factors and their influence on the growth of a country' music.

Musicology II.

Lakshana of the following 70 ragas

Suddha simantini	Kamalamanohari.
Dhenuka	Sarasvatimanohari.
Ahiri	Navarasakannada.
Vasanta bhairavi	Bahudari.
Kalagada	Kuntalavarali.
Malahari	Narayana gaula.
Bhupala	Kokiladhvani.
Revagupti	Kapinarayani.
Gaula	Balahamsa.
Jaganmohini	Ravichandrika.
Pharaz	Malavi.
Nadanamakriya	Karnataka byag.
Malayamarutam	Senjurutti.
Bhairavam	Dvijavanti
Lalita	Nagasvaravali.
Saramati	Garudadhvani.
Hindola	Bangala.

Jayanta sri	Janaranjani.
Manji	Kuranji.
Kiravani	Kathana kutuhalam.
Kiranavali	Navaroj.
Abhogi	Kannada.
Suddha bangala	Purnachandrika.
Manirangu	Hindusthan Behag.
Devamanohari	Vagadhisvari.
Kannada gaula	Vijayasri.
Jayamanohari	Bhavapriya.
Devamruta varshini	Subha pantuvarali.
Udayaravichandrika	Mandari.
Salaga bhairavi	Ramapriya.
Abheri	Hamsanandi.
Hindusthan Kafi	Latangi.
Gaurimanohari	Vachaspati.
Charukesi	Saraswati.
Sarasangi	Yamuna Kalyani.

Samudaya kritis of Tyagaraja, Muthuswami Dikshitar, Syama Sastri, Vina Kuppayyar and Swati Tirunal.

Suddha tana, Kuta tana and other types of Tanas.

Structure of the Pallavi : Prathamanga, Dvitiyanga, Padagarbham. Types of pallavis.

Pallavi exposition in all its detailed stages, inclusive of Anuloma, Pratiloma and Tisram.

Lakshana prabandhas : Murchchanakaraka melaragamalika.

Musical forms on the theme of Nayaka-Nayaki bhava and their lakshana.

Geyanatakas, Nritya natakas and Kuravanji natakas. Their distinctive features and the type of darus and verses figuring in them.

Musical forms pertaining to sacred music in Sanskrit and South Indian languages.

Kachcheri Dharma.

Ritualistic music of temples. Sarva Vadyam.

History of Music.

The different periods of Musical History and their distinctive features. Land-marks in the history of Indian music.

Evolution of the Indian musical scale. Music of the Sama gana.

Names of the notes figuring in Vedic chants.

Marga and Desi—in the spheres of raga, tala and prabandha.

Musical mnemonics—their history and utility.

Evolution of ragas, raga lakshanas and systems of raga classification. Ragas which owe their origin to folk music.

Systems of melas propounded by lakshanakaras in the modern period.

Evolution of musical forms and their angas. Obsolete forms and obsolete angas.

Evolution of the different types of concerts. The number and kinds of performers that constituted the concert parties of the ancient, mediaeval and modern periods. Kinds of Kutapa, Vamsaka brinda, Chinna melam and Periya melam. Folk music bands.

Lakshana granthas written during the ancient, mediaeval and modern periods in Sanskrit, Telugu and Tamil. A general knowledge of the topics dealt within them. The light thrown by those works on the history of Indian music.

Important references to music in the sacred and secular literature in Sanskrit, Telugu and Tamil.

Major and Minor composers of South Indian music of the different periods. Their biographies and contribution to music.

Varieties of Veena and Yazh referred to in ancient works. Reasons for the exit of the Yazh.

Musical careers of the ancient, mediaeval and modern times.

Circumstances that occasioned famous compositions and pallavis.

Recent developments in the spheres of musicology, musical forms and Instruments.

Modern institutions for the presentation and development of music.

Special Subject.

A

One of the following operas :—

1. Nowka charitram of Tyagaraja.
2. Sankara Pallaki Seva Prabandham of Shahji Maharajah.
3. Nandanar charitram of Gopala Krishna Bharati.

The opera prescribed for the examinations of 1960 and 1961 shall be the Nowka charitram of Tyagaraja.

B

One of the following subjects :—

1. Ancient Tamil music.
2. Hindusthani music.
3. Comparative music.

The subject prescribed for the examinations of 1960 and 1961, shall be Comparative Music.

Practical.

All the five compositions constituting the Ghana raga Pancharatna of Tyagaraja.

The Svarajatis of Syama Sastri, in the ragas, Todi, Bhairavi and Yadukulakambhoji.

One composition from each of the following samudaya kritis:—

Kovur Pancharatna and Tiruvottiyur Pancharatna of Tyagaraja.

Panchalingasthala kritis, Navagraha kritis and Kamalamba Navaratna kritis of Muthuswamy Dikshitar.

Navaratna malika of Syama Sastri.

Navaratri kirtanas of Swati Tirunal.

Venkateswara Pancharatnam of Veena Kuppayyer.

One composition in each of the 70 ragas prescribed. The compositions studied shall be representative of the forms :

Tana varna, Pada varna, Kriti, Kirtana, Padam, Javali, Tillana, Ashtapadi, Taranga and Devarnama.

Detailed alapana of the major ragas. Brief alapanas of minor ragas in which there are at least three compositions.

Ability to develop kalpana svaras to suitable themes in those ragas.

Ability to expound 15 pallavis inclusive of at least 5 pallavis in chaukakala. Ability to render Anuloma, Pratiloma and Tisram for chauka kala pallavis.

Ability to grasp and render given pallavis in Adi, Rupaka, Triputa and Jhampa talas.

Ancient Tamil Music.

Muthamizh: Iyal, Isai, Natakam.

References to music in the Silappadikaram and other ancient works.

Technical terms used in ancient Tamil music: Names of the seven notes.

Classification into Pann ; Panniyam ; Tiram ; Tirattiram. Graha bhedam.

The Panns of the Tevaram and their modern equivalents. The panns referred to in the Nalayira Divya Prabandham.

Panns pertaining to different regions of Tamil land. Ganakala of Panns.

Lives of the authors of the Tevaram and Divya Prabandham.

Musical instruments of the stringed, wind and percussion groups referred to in ancient Tamil literature.

Patrons of music.

Endowments created for musical services in Temples by Rajahs.

SPECIAL SUBJECT—1960 and 1961 COMPARATIVE MUSIC.

Syllabus.

1. Comparative Musicology in general.

2. Origins: Indian Music—Western Music.

3. Systems of notation, Equal temperament and just intonation. The staff notation system, its advantages. Symbols used in both systems; Gamakas—Ornaments, etc.

4. Peculiarities in European Music.

Modes: Ascending and descending scales—pitch and sruti.

Rhythm: Accent—moudlation—Chromatic and enharmonic scales Quarter—tones—Progression of notes—Part singing.

5. Peculiarities in Oriental Music:

Various schools—Karnatic system—

The 22 srutis used in Karnatic system—the 72 Melakartas.

The Medaieval Ecclesiastical modes—Marga Ragas—Western Major and Minor modes and melakartas.

6. Ragas or modes—Janaka Magons—Janya Ragas or Derivative scales; Time to sing different ragas—Raga pictures—Karnatic and Hindustani compositions in Western notation.

7. Tala or Time—measure;

Methods of counting time—Table of time—signatures; Western —The different Angas—Comparative Table—The 35 talas—The 175 talas—Mode of reckoning by angas—aksharas and how conducted in Western Music—Some difficulties in Western Music.

8. Harmony: Western-Indian.

9. Difficulties of fusing both the systems of Music.

10. Effects that can be produced by possible combinations.

11. Musical form: Sacred and secular music—Absolute and Programme Music.

Different Forms in both: Indian and Western Music—Folk Music of India.

12. Styles of the Great Masters of Karnatic Music.

Styles of singing, styles of playing.

Styles of music and musical compositions.

Different styles in Western music.

1. Gregorian Chant.
2. Counterpoint.
3. Classicism.
4. The Romantics.
5. Opera from Gluck to Wanger.
6. Late Romantics and Nationalists.
7. The impressionism and the contemporary scene.

13. Musical instruments; Indian and Western—Orchestra: Indian and Western—History and Composers—The greatest composers in Indian and Western music.

Reference Books.

(1) Prof. P. Sambamurthy: South Indian Music, Books 1 to 5. Great Composers 1 and 2. Muscial instruments.

(2) Chinnaswamy Mudaliar: Oriental Music in European notation.

(3) Alain Danielou: Northern Indian Music, The Main ragas.

(4) A short survey of Music of North and South India by S. R. Kuppuswamy.

(5) Personalities in Present Day Music by Krishna Iyer.

1. Trinity College of Music: Text-books on Theory of Music

2. La Musique: Lavignac.

3. Form in Music by Egerton Lowe and Form in Brief by Love lock.

4. Musical Instruments by Borland.

5. Little History of Music by Dr. Hugo Leichtentritt.

6. Lives of the great composers—Pelican Books and Little Biographies by Martens.

BRANCH VIII—INDIAN MUSIC.

Books for reference.

Sangita Sampradaya Pradarsini, Vols. I and II.

Gana Bhaskaram by K. V. Srinivasa Ayyangar.

Gayaka Lochanam: Tachur Singaracharlu.

Sangita Swara Prastara Sagaram by Nadamuni Pandithar.

Nowka Charitram of Tyagaraja, Edited with notation by P. Sambamurthy.

Sankara Pallaki Séva Prabandham of Shahji Maharaja, Edited with notation by P. Sambamurthy.

Andhra Vaggeyakara Charitram by V. Rajanikanta Rao.

Sarngadeva's Sangita Ratnakara with the commentary of Simha Bhupala.

Sangita Saramruta of Tulaja (Music Academi edition).

Yazhnul by Swami Vipulananda.

Mahabharata Chudamani.

Kamalamba Navavaranam edited by Vedanta Bhagavatar.

Abhayamba Navavaranam edited by Ananta Krishna Iyer.

72 Melaragamalika by Maha Vaidyanatha Sivan.

108 Kritis of Tyagaraja by C. S. Ayyar.

Oriental Music in European notation by A. M. Chinnaswami Mudaliar.

Music and Musical Instruments of Southern India and Deccan by C. R. Dey.

Music of Hindustan—Fox Strangways.

Hindu Music from various Authors by Dr. Rajah Sir Sourendra Mohan Tagore.

Sangit bhava, Vols. I and II by Maharana of Dharampur.

Hindusthani Music by G. H. Ranade.

Teaching of Music (Chapters relating to appreciation and History of Music) by P. Sambamurthy.

South Indian Music: Books 4 and 5 by P. Sambamurthy.

Dictionary of South Indian Music and Musicians by P. Sambamurthy.

Sruti Vadyas (Drones) by P. Sambamurthy.

The Flute by P. Sambamurthy.

Story of Indian Music by Goswami.

Bhatkhande's works in English.

Journal of the Madras Music Academy.

In the Practical Examination, candidates may offer Vocal Music or one of the following instruments: Veena, Violin, Gottu Vadyam, Flute.

Branch VIII—Indian Music.

1962 and 1963.

Opera to be studied:

"Sankara Pallaki Seva Prabandham of Shahji Maharaja."

Special Subject (*B*):

Ancient Tamil Music

or

Hindustani Music.

or

Comparative Music.

Branch IX—Ancient History and Archaeology

SYLLABUSES

I. Pre-History and Proto-History with special reference to India:

Stone Ages—Chalcolithic and Megalithic.

Allied Sciences—Elements of Physical Anthropology—Comparative Anatomy—Elementary Geology—Geomophology—Physical Geography—Environmental Archaeology.

Books Recommended:

De Morgan: Pre-historic Man: Outline of Pre-history

Oakley ... Man the Tool maker.

Flint Implements ... (Br. Museum Publications).

H. L. Mouvis ... Early Man and Pleistocane Stratigraphy in Southern and Eastern Asia.

V. G. Childe ... Man Makes Himself.

Mitra: Pre-Historic India. De Terra and Patterson. ... Ice Age in the Himalayas and the Associated Human Cultures.

Bruce Foote, Catalogue of Pre-historic Antiquities in the Government Museum, Madras.

Bagchie ... Pre-Aryan and Pre-Dravidian in India

Stuart Piggot ... Pre-historic India.

Sir M. Wheeler ... The Indus civilization.

Majumdar ... Races and Cultures of India.

Ancient India (Bulletin of the Archaeological Department Nos. Ito XIV—relevant portions).

Indian Archaeology ... A review, 1953-54 to 1957-58.

B. Subba Rao ... Personality of India, 2nd Edition.

M. Seshadri—Pre-history and Proto-history of Mysore.

Leakey ... Adam's Ancestors.

Griffith Taylor ... Environment and Race.

Sullivan ... Anthropometry.

Stittle ... Introduction to Physical Anthropology.

2. History of North India upto 1206 A.D: (Political and Cultural

Books Recommended:

Cambridge History of India, Volume I.

Majumdar (Ed.) History and Culture of the Indian People. (Bharatiya Vidhya Bhavan), Vols. I to V. (Relevant portions).

H. C. Ray Chaudhuri: Political History of Ancient India.

V. A. Smith: Early History of India.

A. K. Narain: The Indo-Greeks.

R. K. Mookerjee: The Gupta Empire.

Ray: Dynastic History of Northern India (2 Volumes).

Tripathi: History of Kanauji.

B. N. Puri: The Gurjara Pratiharas.

R. Satyanathier: A Political and Cultural History of India, Volume I.

3. History of South India (Political and Cultural):

Books Recommended:

K. Gopalachari: The Early History of the Andhra Country.

Bhandarkar: Early History of the Deccan.

A. S. Altekar: The Rashtrakutas and their Times.

Kanakasabhai: Tamils 1,800 years ago.

P. T. Srinivasa Iyengar: History of the Tamils.

S. Krishnaswami Aiyangar: Evolution of Hindu Administrative Institutions in South India.

R. Gopalan: History of the Pallavas of Kanchi.

C. Minakshi: Adminsitration and Social Life under the Pallavas.

K. A. Nilakanta Sastri: The Pandyan Kingdom; The Cholas; The History of South India.

T.V .Mahalingam: South Indian Polity.

4. Principles and Methods of Archaeology:

Archaeological Exploration—Elementary Surveying and Mapping—Excavation—Principles and Methods—Recording and Interpretation—Methods of preservation and exhibition.

Books Recommended:

Sir Mortimer Wheeler ... Archaeology from the Earth.

Sir Mortimer Wheeler ... Still Digging.

R. J. C' Atkinson ... Field Archaeology.

K. M. Kenyan	...	Beginning in Archaeology.
Lady Wheeler	...	A Book of Archaeology.
Sigfried J. de Leet	...	Archaeology and its problems.
Sir Leonard Wolley	...	Digging up the past.
Sir Leonard Wolley	...	Spade Work.
V. Gordon Childe	...	Piecing together the past.
P. E. Cleator	...	The past in pieces.
I. W. Cornwall	...	Bores for the Archaeologist.
I. W. Cornwall	...	Soil for the Archaeologist.
Zeuner	...	Dating the past.
Millar Barrows	...	What mean these stones.
Ceram	...	Narrow pass Black Mountain.
A. E. Berriman	...	Historical Metrology.
M. B. Cookson	...	Photography for Archaeologists.
C. A. Beazle Jr.	...	Air Photography in Archaeology (The Geographical Journal LXXX, 1919).
H. J. Plenderleith	...	The Conservation of Antiquities and works of Art.
Sir John Marshall	...	Conservation Manual.
H. P. Smith	...	Drawing and Tracing
A. H. Detwailer	...	Manual of Archaeological Surveying.
Ancient India	...	Volumes I to XIV (Technical Section).

5. History of the Civilization of Western Asia and Egypt (Upto the 1st Century A.D.) and of South-East Asia (upto 1300 A.D.):

Books Recommended:

V. G. Childe: The Near East and the Foundations of Civilization.
Georges Contenau: Everyday life in Babylon and Assyria.

C. W. Ceram: Gods, Graves and Scholars.

Glyn Daniel: Hundred Years of Archaeology.

S. N. Kramar: History Begins at Sumar.

R. W. Ehrich (Ed.): Relative Chronologies, in Old World Archaeology.

Leonard Wolley: Ur. of the Chaldes.

Grishman: Iran.

Bedrich Hrozny: Ancient History of Western Asia, India and Grete.

Henri Frankfort: The Art and Architecture of the Ancient Orient.

M. A. Murray: The splendour that was Egypt.

W. L. Movius: Early Man and Pleistocene Stratigraphy in Southern and Eastern Asia.

W. F. Stutterheim: Studies in Indonesian Archaeology.

H. R. Van Heekeren: The Stone Age of Indonesia.

H. G. Quaritch Wales: Pre-History of S. E. Asia. The Mountain of God.

Martin F. Herz: A Short History of Cambodia.

Malcolm Macdonald: Angkor.

D. G. E. Hall: A History of South-East Asia.

H. G. Quaritch Wales: The Making of Greater India.

Henrich Zimmer: The Art of Indian Asia. (2 Vols. New York).

K. A. Nilakanta Sastri: South Indian Influences in the Far East.

Reginald Le May: The Culture of South-East Asia.

6. **History of Art, Architecture, Sculpture, Iconography and Painting in India (down to the end of the Vijayanagar Empire):—**

Art and Architecture of the 'Indus Valley.'

Art and Architecture of the Mauryas, Sungas and Kushans.

The Cave Temples of Western and Eastern India.

The Gandhara and Mathura Schools of Art: Gupta Art and Architecture.

The Art and Architecture of Peninsular and South India—Amaravati, Nagarjunakonda.

Badami, Ellora, Elephanta—Ajanta and Bagh Caves.

Pallava Art and Architecture—Mahabalipuram, Kanchipuram and Sittannavasal.

Chola Art and Architecture—The Great Temples at Tanjore and Gangaikondacholapuram.

Architecture of the Pandyas, the Hoysalas and of the Vijayanagar dynasty.

The Main Styles of Indian Temple Architecture; Nagara, Vesara and Dravida.

Indian Sculpture and Inconography—Hindu, Buddhist and Jain Deities and their emblems.

Iconometry—material and technique—Iconoplastic Art—

Indo-Muslim Art and Architecture—Early Painting—Rajput and Mughal Painting.

Books Recommended:

Percy Brown	...	Indian Architecture.
B. Rowland	...	The Art and Architecture of India, (London, 1953).
S. Kramisch	...	The Hindu Temple, 2 Vols. (Calcutta, 1946).
S. Kramisch	...	The Art of India (London, 1955).
Heinrich Zimmer	...	The Art of Indian Asia, 2 Vols. (New York, 1955).
Heinrich Zimmer	...	Myths and Symbols in Indian Art.
J. N. Banerjee	...	Development of Hindu Iconography.
T. A. Gopinatha Rao	...	Elements of Hindu Iconography (2 Volumes).
Coomaraswami	...	A History of Indian and Indonesian Art.
V. A. Smith	...	A History of Art in Indian and Ceylon (Revised by Codrington).
B. Bhattacharyya	...	Jain Iconography.
Cousens	...	Chalukyan Architecture.
Vogel	...	Buddhist Art.
R. C. Majumdar (Ed.)	...	A History of the Indian People (Bharatiya Vidhya Bhavan), 5 Volumes—Relevant portions.

7. Epigraphy and Numismatics

(a) Epigraphy:

Origin of writing in general—Original and history of writing in India-Brahmi, Kharoshthi and other scripts—Development of Indian alphabets from Brahmi-history of the Decipherment of inscriptions—Authenticity—Eras.

Candidates shall make a detailed study of the inscriptions in one of the following groups:

GROUP I.

1. Asokan Edicts—Rock Edict XIII. Pillar Edict VII, Mask Edict (C.I.I., I.)
2. The Hathigumpha Inscription of Kharavela (E. I. XX, p. 71 ff).
3. Girnar Inscription of Rudradaman (E. I. VIII, p. 46 ff.).
4. Nasik Inscription of Queen Balasri.
5. Nagarjunakonda Inscription of Ikshvaku Vira Purusadatta.
6. Allahabad Pillar Inscription of Samudragupta (C.I.I, III, p.lff).
7. Hirahadagalli grant of Sivaskanda Varman (E.I., I., p. 5 ff).
8. Talagonda Inscription of Kakusthavarman (E.I., VIII, p. 24 ff).
9. Aihole Inscription of Pulakesin II (E. I.,, VI, p.lff.)
10. Trichinopoly cave inscription of Mahendravarman (S.I.I.,I.).

GROUP II.

1. Brahmi Inscription at Sittannavasal.
2. Vallam Inscription of Mahendra Potaraja (S.I.I., II. No. 72).
3. Siyamangalam Inscription of Pallava Vijaya Nandi Vikrama Varman (E. I., VI, p. 320 ff.)
4. Velvikudi Grant of Nedunjadaiyan (E.I., XVII, p. 291 ff.)
5. Manur Inscription of Maranjadaiyan (E. I., XXVI, p. 9.)
6. Seven Vatteluttu Inscriptions from the Kongu Country (E. I., XXX, p. 95 ff.)
7. Lalgudi Inscription of Parantaka I.
8. Tiruvalangadu Plates of Rajendra I (Tamil portion) (S.I.I., III, p. 383 ff.)
9. Karimnagar Inscription of Ganapati (Corpus of Telingana Inscriptions, Pt. II).
10. Srinath's Inscription.
11. and 12. Two Kannada Inscriptions from P.B. Desai's corpus of Kannada Inscriptions in the Hyderabad State.

(b) Numismatics:

Its value to history—Origin and evolution of coinage in India-Punch Marked coins—Foreign coins in India—Indo-Greek and Kushan coin—Coinage of the Kshatrapas and the Guptas.

South Indian coins—Coins of the Andhra, Kadamba, Chalukya, Pandya, Chola, Hoysala and Vijayanagar dynasties.

Books Recommended:

Buhler	...	In dische Palaeographie (Indian Palaeography).
		(Tr. by Fleet.) Indian Antiquary, XXXIII, 1903).
Ojah	...	Prachina Bharatiya Lipimala.
R. P. Pandey	...	Indian Palaeography Pt. I (Banaras, 1952).
C. Sivaramamurti	...	Indian Epigraphy and South Indian Inscriptions (Madras-1952).
T. N. Subrahmanyan	...	Pandai Tamil Eluttukkal (in Tamil).
		Temple Inscriptions, Vol. III, Pt. I Introduction.
E. J. Rapson	...	Indian Coins.
C. J. Brown	...	The Coins of India.
Allan	...	Catalogue of Coins in Ancient India.
T. Desikachary	...	South Indian Coins.
S. K. Chakravarthi	...	Ancient Indian Numismatics.
Bhandarkar	...	Carmichael Lectures on Numismatics.

8. Historical Archaeology (Study of selected sites to be prescribed):

Books Recommended:

Indian Archaeology (Government of India Publication).

Ancient India.

Indian Archaeology—A Review.

Memoirs of the Archaeological Survey of India.

Archaeological Survey of India Reports.

Madras Archaeological Reports.

List of Antiquarian Remains in the Madras Presidency.

Mysore Archaeological Reports.

Sir John Cumming (Ed.): Revealing India's Past.

B. Subba Rao: The Personality of India.

M.A. Degree Examination

Text-Books in the various Languages

Branch VII—ENGLISH

1960

PAPER I.

Essay

PAPER II.

Modern English Literature to 1600.

Poetry:

For General Study:

The following from Vol. I, Peacock edn.—English verse Wyatt Surrey, Spenser, Marlowe, Daniel and Drayton. and the following ballads from Vol. II (Peacock)—Sir Patrick Spens. Chevy Chase, The Robin Hood, Ballads Clerk Saunders, Wife of Usher's Well, The Gay Goshawk, The Twa Corbies, Fair Helen, Babes in the Wood, Kinmont Willie

and the following from Vol. II of English verse (Peacock) Campion, Ben Jonson and Donne.

For Detailed Study:

Spenser	...	The Fairie Queen—Selections in English verse, Vol. II (Peacock).

Prose:

For General Study:

Malory	...	La Morte D' Arthur (last three books).
Bacon	...	Essays 1-12.
Bacon	...	New Atlantis.
The Bible (Authorized version).		The Book of Job, The Gospel according to St. Mark.

For Detailed Study:

Sidney	...	Apologie for Poetry.

Drama:

For General Study:

Everyman Marlowe	...	Dr. Faustus.
Kdy	...	The Spanish Tragedy.

Jonson	...	Everyman in his Humour; Bartholomew Fair; The Alchemist.
Massinger	...	A new way to pay old debts.
Dekker	...	The Shoe Maker's Holiday
Webster	...	The White Devil.

For Detailed Study:

Marlowe	...	Edward II.
Webster	...	The Duchess of Malfi.

PAPER III.

Modern English Literature—1600-1789.

Poetry:

For General Study:

Milton, Herrick, Marvell, Vaughan (Peacock—English verse, Vol. II).

Dryden, Pope, Gray, Collins, Goldsmith (Peacock—English verse, Vol. III).

For Detailed Study:

Milton	...	Paradise Lost, Book IX.
Dryden	...	Absalom and Achitophel—Part I.
Pope	...	Epistle to Arbuthnot.

Prose:

For General Study:

Bunyan	...	Pilgrim's Progress.
Walton	...	Life of Donne.
Dryden	...	Essay of Dramatic Poetry.
Swift	...	Gulliver's Travels—Books 1 and 2.
Addison	...	Steeled by Lobban.
Johnson	...	Life of Pope.
Gibbon	...	Autobiography.
Burke	...	Speech on Conciliation with America.
Fielding	...	Tom Jones.
Smollett	...	Humprey Clinker.

Gray's letters.

For Detailed Study :

Dryden	... Preface to Fables.
Swift	... Battle of the Books.
Johnson	... Preface to Shakespeare.
Burke	... Letter to a Noble Lord.

Drama:

For General Study:

Dryden	... All for love.
Congreve	... The Way of the World.
Goldsmith	... She Stoops to Conquer.
Sheridan	... The School for Scandal.

PAPER IV.

Modern English Literature—1789-1832.

Poetry:

For General Study:

Burns, Blake (Peacock, English Verse, Vol. III).

Coleridge, Byson, Shelley, Keats (Peacock, Selections in English Verse, Vol. IV).

Byron: Don Juan, Book I; The Vision of Judgment.

For Detailed Study:

Wordsworth ... The Prelude, Book I.

Selections from Wordsworth in Peacock's English Verse, Vol. III.

Keats ... The Odes.

Prose:

For General Study:

Hazlitt	... Selection (Sampson), O.U.P.
Shelley	... A Defence of Poetry.
De Quincey	... Confessions of an English Opium Eater.
Scott	... The Heart of Midlothian.
Scott	... Invanhoe.
Jane Austen	... Pride and Prejudice.
Jane Austen	... Emma.

For Detailed Study:

Haxlitt	...	My First Acquaintance with Poets.
Lamb	...	Essays of Elia, I Series.
Wordsworth	...	The Preface to Lyrical Ballads and Appendix (1802).

PAPER V.

Modern English Literature—1832 to the Present Day.

***Poetry*:**

For General Study:

Tennyson, Browning, Arnold, Rossetti, Morris (Peacock's English Verse, Vol. V).

The Faber Book of Modern verse, Ed. by Roberts—East Coker by T. S. Eliot and the following poets:

Hopkins : D. H. Lawrence, Wilfred Owen, Day Lewis, W. H. Auden, Louis Macniece and Stephen Spender.

For Detailed Study:

Browning	...	Abt Vogler.
Arnold	...	The Scholar Gipsy; Thyrsis.
Tennyson	...	Lucretius, Ulysses.
Yeats and Eliot	...	Except "East Coker" in Faber Book of Modern verse.

***Prose*:**

For General Study:

Newman	...	Idea of a University (nine discourses)
Dickens	...	Nicholas Nickleby.
Thackeray	...	Vanity Fair.
George Eliot	...	Mill on the Floss.
Arnold	...	Essays in Criticism, II Series.
Cecil	...	Hardy the Novelist.
Virgina Woolf	...	The Common Reader, I Series.
Strachey	...	Eminent Victorians.
Montague, C. E.	...	A Writer's notes on his trade (last six essays).
English Essays of to-day	...	(Put for the English Assn., OUP.)
Meredith	...	Evan Harrington.

Hardy	...	Far from the Madding Crowd.
Hardy	...	Tess of the D'Urbervilles.
Stevenson	...	Weir of Hermiston.
James, H.	...	Portrait of a Lady.
Conrad	..	Lord Jim.
Virginia Woolf	...	Mrs. Dalloway.
Maugham	...	Cakes and Ale.
Kipling	...	Selected Stories (Macmillan).

For Detailed Study:

Carlyle	...	Burns.
Arnold	...	The Study of Poetry and Preface to "Poems—1853."
Pater	...	Essay on Style and Postscript (Appreciation).
Eliot, T. S.	...	Tradition and the Individual talent.

Drama:

For General Study:

Swinburne	...	Atlanta in Calydon.
Galsworthy	...	Silver Box.
Barrie	...	The Admirable Crichton.
Synge	...	Riders to Sea.
Synge	...	The Playboy of the Western World.
O'Cassey	...	Juno and the Paycock.
Shaw	.	Arms and the Man.
Wilde	...	The Importance of being Ernest.
Bennett & Knobblock	...	Milestones (Modern Plays—Everyman's).
Milne, A. A.	...	The Dover Road; Coward; Hay Fever; Sheriff. Journey's End.
Maughom	...	For Services rendered.

For Detailed Study:

Eliot, T. S.	...	Murder in the Cathedral.
Shaw	...	St. Joan.

PAPER VI.

Special Period

Old and Middle English

Old English:

Sweet and Onions	... Anglo-Saxon Reader (Selections Nos. 1, 2, 4, 10, 15, 21, 25 and 26—eight only).

Middle English:

K. Sisam	... Fourteenth Century verse and Prose (Selections Nos. 3, 4a, 4b, 6, 8, 13b, 14d, 15b, 15c and Sir Gawayne).
Chaucer	... The Knight's Tale.

The Age of Wordsworth.

Poetry:

For General Study:

Wordsworth	... The Prelude.
Scott	... Marmion.
Keats	... Endymion, Books I & III.
Byron	... Childe Harold, Cantos III & IV.

For Detailed Study:

Wordsworth	... The Prelude, Book IV.
Coleridge	... Ode to Dejection.
Keats	... The Eve of St. Agnes, Hyperion.
Shelley	... Prometheus Unbound.

Prose:

For General Study:

Hazlitt	... The Spirit of the Age.
Lamb	... Essays in addition to the Essays of Elia.
Cobbett	... Selections, edited by Hughes (Clarendon)
Landor	... Imaginary Conversations (Blackie)

For Detailed Study:

Coleride and Wordsworth.	Biographia Literaria and Prefaces (ed. by Quiller-Couch and Sampson put. C.U.P.)
Shelley	... Defence of Poetry.

Drama:

Shelley	...	The Cenci.

Novel:

Jane Austen	...	Northanger Abbey.
Jane Austen	...	Persuasion.
Scott	...	The Antiquary.
Scott	...	The Fortunes of Nigel.
Peacock	...	Crotch-Castle.

PAPER VI

The Elizabethan Age.

Poetry :

For General Study :

Ballads in Ward's English Poets.

Poems by Wyatt, Surrey, Spencer, Daniel, Drayton, Carew, Crashaw in Ward's English Poets.

For Detailed Study :

Spencer : Faerie Queene—Book I.

Marlowe : Hero and Leander.

Shakespeare : Venus and Adonis.

Donne : Poems in Ward's English Poets.

Prose :

For General Study :

Malory : La Morte D'Arthur.

Reger Ascham : The School-master.

Shorter Novels of the Elizabethan and Jacobean Periods (Everyman—Vol. I).

For Detailed Study :

Bacon : Essays (World's classics).

George Puttenham : The Arte of English Poetrie—Book III.

Drama :

For General Study:

Beamont and Fletcher : Philaster.

Cyril Tourneur : The Revenger's Tragedy.

Middleton : The Changeling.

John Ford : The Broken Heart.

PAPER VII.

Shakespeare.

For General Study:

The Plays of Shakespeare

For Detailed Study:

A Midsummer Night's Dream.

Henry IV, Part I.

Twelth Night.

Hamlet.

The Tempest.

PAPER VIII.

History of English Language and Chaucer.

i. The main differences between the language groups of the world

ii. The Indo-Germanic Family in Outline.

iii. Periods of English, Old, Middle and Modern (A linguistic study).

iv. Vocabulary and Foreign Elements.

v. Chaucer: The Prologue and The Nun's Priest's Tale (A literary study).

Books recommended:

i. Jesperson: The Growth and structure of the English Language.

ii. Wrenn, C.L.: The English Language.

iii. Palmar, W.A: Introduction to Linguistics.

iv. Sweet, H.: Primer of Old English.

v. Stuart Chase: The Tyranny of Words.

vi. Sheard: The Words we use.

SANSKRIT

Branch VII—SANSKRIT

Section A

Part I

1959 & 1960

Prescribed Text-books—Early Period:

1. A. A. Macdonell : Vedic Reader (Oxford University Press). Hymns 1 to 10 together with the corresponding passages 1 to 10 in Sayana's Commentary on the Rig Veda.
2. Sayana : Upodghata to his Bhashya on the Rig Veda.
3. Yaska : Nirukta, Naighantuka-Kanda, Chapter II.
4. Aitareya Brahmana : Chapters 37 and 38 (VIII Panchikas II and III).
5. Kathopanishad : Chapter II (Vallis 4 to 6).

Prescribed Text-books—Later Period:

1. Poetry : Sri Harsha—Naishadha, Sarga I.
2. Prose : Bana—Kadambari (From Sukanasopadesa to the end of Mahasveta Vrittanta).
3. Drama : Sudraka—Mricchakatika.
4. Poetics : Vidyanatha—Prataparudrayasobhushana (omitting Alankara prakarana and the illustrative Nataka).
5. Prosody : Vrittaratnakara—Chapters 1 to 4. (Metres relating to those occurring in the prescribed drama and poetical selections).

Part II

1960 & 1961

Prescribed Text-books—Special Subject I:

VYAKARANA.

Paper I.

Praudha Manorama of Bhattoji Dikshita—prakaranas : Samjna, Paribhasha, Sandhi and Karaka.

VYAKARANA.

Paper II.

Patanjali's Maha Bhashya I (1), Ahnikas 1 to 3.

Bhartruhari's Vakyapadiya, Kanda I.

NYAYA

Paper I.

Nyaya Bhashya of Vatsyayana on the Nyaya Sutras of Gautama, Chapters 1 and 2.

Kanada : Vaiseshika sutras (whole).

Paper II.

Viswanathapancanana—Siddhanta Muktavali (whole).

Udayanacharya—Nyaya Kusumanjali, stabaka 1 only.

VEDANTA.

Paper I.

Dharmarajadhwarin—Advaita Vedanta Paribhasha.

Sri Sankaracharya—Brahma Sutra Bhashya—Catussutri.

Paper II.

Sri Ramanujacharya—Vedartha Sangraha (whole).

Sri Madhvacharya—Dasaprakaranas (omitting Karma Nirnaya and Tattvodyota).

Prescribed Text-books—Special Subject II:

1. ALANKARA:

Anandavardhana—Dhvanyaloka (whole).

Jagannatha Pandita—Rasagangadhara 1st Anana only.

2. MIMAMSA:

Apodeva—Mimamsa Nyayaprakasa (whole).

Sabaraswami—Mimamsa Bhashya, Chapter I (Pada 1, Sutras 1 to 5, to the end of Atmanirupana).

3. SANKHAYA-YOGA:

Iswarakrishna—Sankhya Karikas with the Vritti of Gaudapada.
Patanjali—Yoga Sutras with the Bhashya of Vyasa.

Branch VII—SANSKRIT

Section B

Text-Books

Part I

1959 & 1960

Paper I.

Prescribed Text-books :

Mimamsa : Parthasarathi Misra—Nyayaratnamala.

Vedanta : Advaita, Visishtadvaita and Dvaita (Common to the three systems of Vedanta).

1. Iswarakrishna's Sankhyakarika with Gaudapada Vritti.
2. Patanjali's Yogasutra with Bhoja Vritti.
3. Advaita Vedanta Paribhasha.
4. Nitimala.
5. Dasaprakaranas (omitting Karma Nirnaya and Vishnu Tatva Nirnaya.)

Nyaya :

1. Gadadhara—Avayava from the beginning to the end of Pratijna.
2. Gadadhara—Samanyanirukti.

Vyakarana :

Nagesabhatta—Laghusabdendusekhara (from the beginning to the end of Stri Pratyaya)

Sahitya :

1. Vararuci : Prakrita prakasa.
2. Vrittaratnakara—Chapters 1 to 4.
3. Vamana : Kavyalankara Sutra Vritti.
4. Mammata : Kavyaprakasa.

Jyotisha :

1. Brihatsamhita (whole).
2. Brihajjataka (whole).

Part II

1960 & 1961

Prescribed Text-books: Paper II :

Mimamsa :

Sabarabhashya, Chapter I with Kumarila's Vartika, Chapter I (omitting Slokavartika).

Paper III :

Bhattadeepika—Uttara Shatka only.

Paper IV :

Bhattarahasya.

Vedanta—Advaita :

Paper II:

Siddhanta Bindu Text only (whole).

Tattvapradeepika of Citsukacarya—First Pariccheda only.

Paper III :

Advaita Siddhi—Pariccheda I (from the beginning to the end of Agamabadoddhara).

Advaita Siddhi—Pariccheda II (Akhandartha Vada).

Paper IV :

Laghucandrika (from the beginning to the end of Upadhi and Akhandarthavada section).

Visishtadvaita :

Paper II:

Vedarthasangraha.

Siddhi Traya of Yamunacarya.

Paper III :

Satadushani with Candamaruta (15 vadas only)

Paper IV :

Nyaya Siddhanjana—First five Paricchedas (to the end of Buddhi Pariccheda)

Dvaita :

Paper II.

Nyayamrita—First Pariccheda only.

Paper III :

Nyayamrita Tarangini—First Pariccheda only.

Paper IV :

Bhedojjivanam

Dasaprakarana : Vishnutattva and Karmanirnaya.

Nyaya

Paper II :

Udayanacarya—Nyayakusumanjali (whole)

Paper III:

Gadadhara—Vyutpatti Vada (whole)

Khandadeva—Bhattarahasya (to the end of Prathama).

Paper IV :

Gadadhara—Satpratipaksha Vibhajaka.

Gadadhara—Avacchedakata-Nirukti.

Gadadhara—Savyabhicarasamanyalakshanam.

Vyakarana :

Paper II :

Mahabhashya—Nava Ahnikas.

Paper III :

Laghumanjusha—Sections containing Subartha Vichara and Namartha Vicara.

Paper IV :

Gadadhara—Vyutpatti Vada (from the beginning to the end of Prathama).

Vaiyakarana Bhushanasara—Whole (omitting Subartha Vichara and Namartha Vichara)

Sahitya :

Paper II :

Siddhanta Kaumudi—Uttarardha (omitting Unadi, Vaidika and Svara prakaranas)

Paper III :

Dhavanyaloka.

Udbhata's Kavyalankarasara sangraha.

Paper IV :

Rasagangadhara (from the beginning to the end of Rupaka Citramimamsa of Appayadikshita)

Jyotisha :

Paper II :

Siddhanta Siromani (whole)

Paper III :

Muhoorta Cintamani (whole)

Prasnamarga (Purvardha only)

Grahalaghava (from the beginning to the end of Candragrahanadhikara)

Paper IV :

Surya Siddhanta (whole)

Aryabhateeya (whole)

Branch VII—HINDI

Part I—1959 & 1960

Paper I :

History of Literature and Principles of Literary Criticism.

SECTION A.

History of Literature :

(1) Hindi Sahitya Ka Ithihas—Ram Chandra Shukla.
(2) Hindi Sahitya Ki Bhoomika—Hazari Prasad Dirvedi.
(3) Hindi Sahitya Ka Alochanatmak—Itihas—Ram Kumar Verma
(4) Hindi Sahitya—Shyam Sundar Das.
(5) Adhunik Hindi Sahitya Ka Itihas—Krishna Shankar Shukla.
(6) A History of Hindi Literature—K. B. Jindal.

SECTION B.

Principles of Literary Criticism :

(1) Sahityalochan—Shyam Sundar Das.
(2) Sahityavivechan—Kshemendra Suman and Jogendra Kumar Malik.

(3) Bharateeya Sahitya Shastra (Parts I and II)—Baldev Prasad Misra.
(4) Introduction to the Study of Literature—Hudson.
(5) Practical Criticism—Richards.

Paper II:

Grammar, Prosody and Poetics:

(1) Hindi Vyakaran—Kampta Prasad Guru.
(2) Grammar of Hindi Language—Kellog.
(3) Chand Prabhakar—Bhanu.
(4) Nav Ras—Gulab Rai.
(5) Kavya Kalpadrum, Parts I and II—Kanhaiya Lal Poddar.

Paper III:

Prescribed Text-books—Prose:

(1) Rani Ketki Ki Kahani—Insha Alla Khan.
(2) Premashram—Prem Chand.
(3) Chintamani—Ram Chandra Shukla.
Kalpa Vriksha—Vasudev Sharan Agarwal.

Drama:

(1) Chandravali natika—Bharatendu Harishchandra.
(2) Shakuntala—Raja Laxman Singh.
(3) Chandragupta—Jai Shankar Prasad.
(4) Sindoor Ki Holi—Laxminarayana Mishra.

Books for Reference:

(1) Hindi Gadya Shaili Ka Vikas—Jagannath Prasad Sharma.
(2) Hindi Natak: Vaibhav aur vikas—Dasharath Ojah.

Part II

1960 & 1961

Paper I:

Prescribed Text-books II:

Old Poetry:

1. Samkshipta Padmavat—M. M. Jayasi—Indian Press, Allahabad.
2. Kavitavali—Tulasidas.
3. Bhramara Geeta Sar—Ed. Ram Chandra Shukla.
4. Bihari Sangrah—Nagari Pracharini Sabha, Kashi
5. Kavitta Ratnakar—Senapati.

Paper II :

Prescribed Text-books III :

Modern Poetry :

1. Saket (sargas 1 to 9 only)—Maithili Saran Gupta.
2. Kamayani—(sargas 1 to 6 only).
3. Uddhava Shatak—Ratnakar.
4. Rashmi Rathi—Dinkar.
5. Adhunik Kavi—Mahadevi Verma.

Paper III :

The History of Language and Philology :

1. Bhasha Vigyan—S. S. Das.
2. Samanya Bhasha Vigyan—Baburam Saxena.
3. Hindi Bhasha Ka Itihas—Dheerendra Verma.
4. Hindi aur Pradeshik Bhashaon Ka Vaigyanik Itihas—Shamsher Singh Narula.
5. Indo-Aryan and Hindi—S. K. Chatterji.
6. Linguistic study of India Vol. I—Grierson.
7. Language—Bloom Field.

Paper IV :

A Special Author—Goswami Tulasidas :

For Reference only :

1. Tulasidas—Ram Chandra Shukla.
2. Tulasidas aur Yunka Kavya—Ram Naresh Tripathi.
3. Tulasidas—Mata Prasad Gupta.
4. Tulasidas aur Unka yug—Rajpati Dikshit.
5. Tulasi sahitya aur siddhanta—Yagyadatta Sharma.
6. Kambar aur Tulasi—S. Shankar Raju Naidu.

Subsidiary languages for Hindi Main

Paper V :

(i) *Sanskrit as subsidiary language:* (1960 & 1961)

1. Meghasandesa.
2. Vikramorvasiya.
3. Kadambari Sangraha (from the beginning to the end of Sukanasopadesa).

(ii) *Tamil as Subsidiary language*: (1960 *only*)

Same as for Paper I, under Part II:—Tamil for the Pre-University Examination of 1960. Viz.:

Poetical Selections. (Published by the University)—

(1) Purananuru (Stanzas 72, 74, 77 and 101).

(2) Tirukkural (Uzhavu, Sanrannmai, Aalvinaiyudaimai and Sirrinam ceramai).

(3) Silapadhikaram (Kadukann Kathai).

(4) Periyapuranam (Apputhi Adigal Puranam).

(5) Kambaramayanam (Vali Vathaip Patalam—Stanzas 119-153).

(6) Nala Vennba (Kali Neengu Kandam—60 lines).

(7) Kutrralak Kuravanchi (Thala Mahimai Kural—Stanzas 57-60).

(8) Bharathiyar—Porumaiyin Perumai (Stanzas 11 to 18), Government Publication.

(9) Manonmaniyam (Sivakami Saritai—140 lines).

Prose Detailed.—(1) Karantik Katturaikkovai (omitting Tiruviruttam (Karanti-t-Tamizh Sangam, Tanjore).

(2) Ilvazkkai (pp. 1-136 only) by Dr. M. Rajamanikkam (No. 36, Manjannakara Street, Madurai).

(iii) *Telugu as Subsidiary language*: (1960 *only*)

The same standard as for Part II of the Pre-University course of studies in Telugu—1960. Viz.-

Poetry.—

(1) Dharmajunirajasuyayagamu by Nannaya.

(2) Chandrahasa Charitra from Pillalamarri Pina Veerabhadrakavi Jaimini Bharatamu from Selections No. 1 and No. 9, published by the University of Madras.

Prose detailed.—

Chitraratnakaram by Sri G. Ramamurti, V. Ramaswamy Sastrulu and Sons, Madras.

Telugu as Subsidiary language: (1961 *only*)

Prose:

Vyasamala: Edited by P. V. Somayajulu.

(iv) *Kannada as Subsidiary language*: (1960 & 1961)

(*a*) *Poetry*:

1. The following selections from Kavya Sangraha published under the auspices of Southern languages Book Trust by Samaja Pustakalaya, Dharwad—
   - (1) Basaveswarana Vacanagalu (pp. 61—65)—92 lines.
   - (2) Uttarana Yuddabhigamana (pp. 123—132)—216 lines.
   - (3) Dasara Padagalu (p. 144—150)—100 lines.

2. The following selections from 'Kavya Sri' published under the auspices of the Southern languages Book Trust by The Sri Krishna Press (No. 10, 3rd Road, Chamarajpet, Bangalore-2).
   - (1) Kannadigara Tayi (pp. 4-6), lines 70.
   - (2) Dalimbe (p. 66), lines 14.
   - (3) Mandara huva (p. 87), lines 20.
   - (4) Nidu Patheyavanu (pp. 88—89), lines 24.
   - (5) Nanu Badavi (p. 97), lines 20.
   - (6) Nagu naguta haguravagu (pp. 112—113), lines 30.
   - (7) Viraramasana (pp. 157—160), lines 96.
   - (8) Anna Purnege (pp. 169—171), lines 56.
   - (9) Railu Raste (pp. 46—48), lines 53.

(*b*) Santala by K. V. Iyer.

(c) Bhasana Ekanka natakagalu—Urubhanga, Madhyama Vayoga, Karna Bhara. (By L. Gundappa).

(v) *Malayalam as Subsidiary language* (1960 & 1961)

1. Vallathol Narayana Menon	...	Sahitya Manjari Part III.
2. Vailoppillil Sreedhara Menon		Kannikkoythu (Selections of poems: 1. Maampazham 2. Vasantham 3. Assam Panikkar 4. Kaakka 5. Sahyante Makan 6. Paschima Samudram.
3. N. V. Krishna Variyar	...	Kalotsavam.
4. M. P. Paul	...	Sahityavicharam.

Branch VII—TAMIL

Part I

1959 & 1960

Prescribed Text-books III—

Prose and Drama :

1. Iraiyanar Akapporul—Second Sutram Urai alone.
2. Adiyarkkunallar—Uraippayiram to Silappadhikaram.
3. Nacchinarkkiniyar—Uraippayiram to Akatthinai Iyal in Poruladhikaram.
4. Parimelazhagar—Uraippayiram to Aratthuppal and Kamatthuppal of Kural.
5. 'Anciraiya mata naray'—The Itu of the ten verses.
6. Anandarangam Pillai Diary—Volume I.
7. Kumuthavalli by Maraimalai Adigal.
8. Tiru-Vi-Ka—Indiyavum Viduthalaiyum.
9. Mukkudarpallu.
10. Kutralakkuravanchi.
11. Manoharan by P. Sambanda Mudaliar.
12. Bharathiyar Padalkal.
13. Arutpa—Kirttanaippakuthi.

Note.—Questions should be only on the theory of the literature of the Age and the developments of the specific kinds of literature to be illustrated with the help of the books prescribed.

Part II

1960 & 1961

Prescribed Text-Books I—

Ettutthokai :

1. Natrinai : Stanzas 1 to 10 including the invocatory verse.
2. Kurunthokai : do do
3. Ainkurunuru : do do
4. Kalitthokai : do do
5. Akananuru : do do
6. Purananuru : do do
7. Paripadal : Stanzas 1 to 5.
8. Pathitruppatthu : 1 to 10.

Pathuppattu :

1. Perumpanatruppadai.
2. Mullaippattu.

Pathinenkizhhkkanakku :

1. Tirukkural : Illara Iyal.
2. Naladiyar : 1 to 50 stanzas including the invocatory verse.
3. Pazhamozhi : 1 to 50 do
4. Nanmanikkadikai to Kainnilai (other 15 works of Pathinen-kizhkkanakku)—1 to 10 verses available.

Silappadhikaram :

Full Text.

Manimekalai :

1 to 10 Kathais excluding the pathikam.

Note :—Annotation questions shall be based only on Ettu:-thokai portions.

Prescribed Text-Books II :

Hymn:

1. First two pathikams in each of the seven Tirumurais of Saivism.
2. Tiruvacakam : Nitthalvinnappam.
3. Perumal Tirumozhi.
4. Rakshanyamanoharam : 1-50 verses.
5. Masthan Sahib Patalkal : 1-50 verses.

Kavyas, Puranas and Prabandhas :

1. Cinthamani : Kovinthaiyar Ilampakam.
2. Periyapuranam : Karaikkalammaiyar-Puranam.
3. Kambaramayanam : Sundarakandam : Full Text.
4. Kalinkatthupparani : Full Text excluding Katai tirappu and Raja Paramparíyam.
5. Kulotthunka Cozhan Ula.
6. Meenakshiammai Pillaitthamizh : Stanzas 1 to 10 in each paruvam.
7. Pirapulinkaleelai: 1 to 3 katais.
8. Ceerappuranam : Nattuppatalam.

9. Tempavani : Nattuppatalam.

Note :—Annotation questions should be based only on Kambaramayanam.

General Note to all the three papers :

Candidates should be expected to have a general acquaintance with the classics of the various ages to form an idea about the history of Tamil Literature.

Branch VII—TELUGU
Part I—1959

1. *Prose*:—

1. Duvuri Rami Reddi—Sarasvata vyasamulu, Vol. IV.
2. Pingali Lakshmikantam—Gautama Vyasamulu.
3. Paranandi Jagannathaswamy—Essays on Literary Criticism.

Books recommended for General study:—

1. Kaluve Viraraju—Bharatam.
2. Essays on Mahabharata published by Andhra Sarasvata Parishad, Hyderabad.

Poetry:—

1. Nannichoda—Dakshadhwara dhvamsamu.
2. Tikkana—Santi Parvam, Canto 1 only.
3. Palkuriki Somanatha—Parvataprakaranam, Srisaila yatra.
4. Errana—Harivamsam—Rukminikalyanam.
5. Nachana Somana—Hamsadibhakopakhaynam.
6. Bhaskara Ramayanam—Kishkindha kanda.
7. Vasucharitra —Canto 2 only.
8. Chamakurti Venkatakavi—Sarangadhara charitra, Cantos 2 and 3.

Recommended for General Study:—

1. Gurazada Venkata Apparao—Muktyala saramulu.
2. Sri Sri—Maha Prasthanam.
3. Vaitalikulu, edited by Muddukrishna.
4. Dasarathi—Mahodayamu.
5. Puttaparti Narayanacharyulu—Sivatandavamu.

Drama:—

1. Vedam Venkataraya Sastry—Prataparudriyam.
2. K. Veeresalingam—Prabhodha Chandrodayam.

Related languages for Telugu Main

(i) Sanskrit as Related language

(i) *Sanskrit as Related language* (1959)

(1) Uttararamacarita of Bhavabhuti.

(2) Kadambari Sangraha—from the Sukanasopadesa to the end of Mahasveta Vrittanta.

(ii) *Tamil as Related language* (1959)

Same as for Paper I under Part II for the B.A. and B.Sc. Examinations of the same year Tamil.

(iii) *Kannada as Related language*(1959)

Poetry:

(*a*) (1) The following selections from Kavya Sangraha—published under the auspices of Southern Languages Book Trust by Samaja Pustakalaya, Dharwad:—

(1) Basaveswarana Vacanagalu (pp. 61-65)—92 lines.

(2) Uttarana Yuddabhigamana (pp. 123-132)—216 lines.

(3) Dasara Padagalu (pp. 144-150)—100 lines.

(2) The following selections from 'Kavya Sri': published under the auspices of the Southern Languages Book Trust by The Sri Krishna Press (No. 10, 3rd Road, Chamarajpet, Bangalore-2):

(1) Kannadigara Tayi (pp. 4-6), lines 70.

(2) Dalimbe (p. 66), lines 14.

(3) Mandara huva (p. 87), lines 20.

(4) Nidu Patheyavanu (pp. 88-89), lines 24.

(5) Nanu Badavi (p. 97), lines 20.

(6) Nagunaguta haguravagu (pp. 112-113), lines 30.

(7) Vira masana (pp. 157-160), lines 96.

(8) Anna Purnege (pp. 169-171), lines 56.

(9) Railu Raste (pp. 46-48), lines 53.

(b) Santala by K. V. Iyer.

(c) Bhasana Ekanka natakagalu—Urubhanga, Madhyama Vyayoga, Karna Bhara. (By L. Gundappa).

Part II

1959

A Special Period of Literature —Srinatha Period.

Books recommended for General Study:—

1. Srinatha Harivilasamu—Kumarasambhava Katha.
2. Ananta Matya—Bhojarajiyamu, Canto IV.
3. Jakkana—Vikramarka charitra—Simhasana dwatrimssika, Canto II only.

Books recommended for consultation:—

(1) Chaganti Seshayya's Kavitarangani—Volume relating to Srinatha.

(2) The following selections from 'Kavya Sri'—published under the auspices of the Southern Languages Book Trust by The Sri Krishna Press (No. 10, 3rd Road, Chamarajpet, Bangalore-2).

(1) Kannadigara Tayi (pp. 4-6), lines 70.
(2) Dalimbe (p. 66), lines 14.
(3) Mandara huva (p. 87), lines 20.
(4) Nidu Patheyavanu (pp. 88-89), lines 24.
(5) Nanu Badavi (p. 97), lines 20.
(6) Nagu naguta haguravagu (pp. 112-113), lines 30.
(7) Vira masana (pp. 157-160), lines 96.
(8) Anna Purnege (pp. 169-171), lines 56.
(9) Railu Raste (pp. 46-48), lines 53.

(b) Santala by K. V. Iyer.

(c) Bhasana Ekanka natakagalu—Urubhanga, Madhyama Vyayoga, Karna Bhara. (By L. Gundappa).

TELUGU

Part I—1960.

Prose:

Bharatiya Tattwasastramu by B. Venkateswarlu, M.A., 300 pages to be selected.

Poetry:

1. Kumarasambhavam by Nannichoda-Cantos, 7 to 12.
2. Prabhavati Pradyannam by Pingali Surana.
3. Rajagopala Vilasamu by Kalakavi.
4. Soundaranandam by Pingali Katuri.

Drama:

1. Veni Samharamu by V. Subbarayudu.
2. Saraswathi by Panngauti Narasimha Rao

Related Languages

Sanskrit as a related language (1960).

1. Uttararama Charita of Bhavabhuti.
2. Kadambari Sangraha—from the Sukanasopadesa to the end of Vrittanta.

Tamil as a related language (1960).

Same as Paper I under Part II for the B.A. and B.Sc. Examinations of the same year Tamil.

Kannada as a related language (1960).

Poetry:

(1) The following selections from Kavya Sangraha—published under the auspices of Southern Languages Book Trust by Samaja Pustakalaya, Dharwad.

(1) Basaveswarana Vacanagalu (pp. 61-65), 92 lines.

(2) Uttararama Yuddabhigamana (pp. 123-132), 216 lines.

(3) Dasara Padagalu (pp. 144-150), 100 lines.

(2) The following selections from "Kavya Sri"—published under the auspices of the Southern Languages Book Trust, by the Sri Krishna Press, No. 10, 3rd Road, Chamarajpet, Bangalore-2:

1. Kannadigara Tayi (pp. 4-6), 70 lines.
2. Dalimbe (p. 66), 14 lines.
3. Mandara huva (p. 87), 20 lines.
4. Nidu Patheyavanu (pp. 88-89), 24 lines.
5. Nanu Badavi (p. 97), 20 lines.
6. Nagunaguta haguravagu (pp. 112-113), 30 lines.
7. Vira masana (pp. 157-160), 96 lines.
8. Anna Purnege (pp. 169-171), 56 lines.
9. Railu Raste (pp. 46-48), 53 lines.

(*b*) Santala by K. V. Iyer.

(c) Bhasana Ekanka natakagalu—Urubhanga Madhyama Vyayoga Karna Bhara (by L. Gundappa).

Malayalam as a related language (1960).

1. Vallathol Narayana Menon	...	Sahitya Manjari Part III.
2. Vailoppillil Sreedhara Menon.		Kannikkoythu (Selections of poems: 1. Maampazham 2. Vasantham 3. Assaam Panikkar 4. Kaakka 5. Sahyante Makan 6. Paschima Samudram).
3. N. V. Krishna Variyar	...	Kalotsavam.
4. M. P. Paul	...	Sahityavicharam.

Part II—1961

Special period of Telugu Literature.

The Southern School in Telugu Literature.

Branch VII—KANNADA

Part II

1960 and 1961.

For Paper VII—Special Study: " RANNA."

Optional Languages

(i) *Sanskrit as an Optional Language* (1960 & 61)

(1) Meghasandesa.

(2) Vikramorvasiya.

(3) Kadambari Sangraha (from the beginning to the end of Sukanasopadesa).

(ii) *Tamil as an Optional Language*: 1960 & 61

Same as for Paper I under Part II for the B.A. and B.Sc. Examinations of the year Tamil.

Branch VII—MALAYALAM

Part I

1959 and 1960

I. Prosody, Poetics and Literary Criticism :

1. Vrittamanjari ... A. R. Rajaraja Varma.
2. Bhashabhushanam ... A. R. Rajaraja Varma.
3. Dravidavrittangalum Avayute Dasaparinamangalum ... Appan Tampuran.
4. Kavyajivitavritti, Parts I, II and III ... P. Krishnan Nayar.

   (Only general study of the principles in Parts I and III needed. Part II—Alankaras—to be studied in detail).
5. Lilatilakam Silpas—4 to 8 ... Any Edition.
6. Vrithasilpam ... Kuttikrishna Marar.
7. Nataka Pravesika ... A. D. Harisarma.
8. Kathakali Prakasika ... Mathoor Kunju Pillai.
9. Natya Rachana ... Tekkumkattil Ramunni Nayar.
10. Kathakali Prakaram ... Pannisseril Nanu Pillai.

Books recommended for consultation :

1. Sahitya Darpanam, Parts I and II. Malayalam Improvement Committee, Trichur.
2. Sanskrit Poetics, Vols. I and II ... S. K. De.
3. Sahityalochanam ... P. M. Sankaran Nambiar.
4. Kavyapeethika ... Joseph Mundassery.
5. Saundarya Nireekshanam ... M. P. Paul.
6. Aristotle's Poetics ... Ed. by Butcher.

7. Principles of Criticism ... I. A. Richards.
8. The Philosophy of Aesthetic Pleasure ... Panchapakesa Sastri.
9. Conception of Riti and Guna in Sanskrit Poetics ... P. C. Lahiri.
10. Introduction to the Study of Literature ... Hudson.
11. Roopamanjari ... A. Balakrishna Pillai.
12. Some Principles of Literary Criticism ... Winchester.
13. Principles of Criticism ... Worsfield.
14. Appreciation ... Pater.
15. What is Art ? ... Tolstoy.
16. History of Criticism ... G. Saintsbury.
17. Aesthetics ... Beneditto Croce.
18. Uses of Criticism and the uses of Poetry. ... T. S. Eliot.
19. Practical Criticism ... Richards.

II. Prescribed Text-Books—Modern Literature, Prose and Drama:

Prose:

1. Dharmaraja ... C. V. Raman Pillai.
2. Ummachu ... Uroob.
3. Rantitangazhi ... Takazhi.
4. Keralasimham ... Sardar K. M. Panicker.

Short Story:

1. M. R. K. C's Short Stories Part I.
2. Deenamma ... P. Kesavadev.
3. Iruttilninnu Velichathilekku ... K. S. Ezhuthachan.
4. Keralakatha Part II ... Attoor Krishna Pisharoti.

Biography:

1. Smaranamandalam ... P .K. Narayana Pillai.
2. C, V. Raman Pillai ... P. K. Parameswaran Navı

Travelogue:

1. Nile Diary	...	S. K. Pottekkat.
2. Amerikkzyilekku Oru Yatra	...	Dr. C. R. Narayanan.

Scientific works:

1. Parinamam	...	Dr. K. Bhaskaran Nayar.
2. Sciensinte Vikasam	...	M. C. Namputhirippad.

Humour:

1. Chiriyum Chinthayum Part I	...	E. V. Krishna Pillai.
2. Chiri	...	C. R. Kerala Varma.

Essays:

1. Sahityanikasham	...	M. R. Nayar.
2. Rajankanam	...	Kuttikrishna Marar.
3. Manadandam	...	Joseph Mundassery.
4. Sahityavicharam	...	M. P. Paul.
5. Vimarsarasmi	...	Kuttippuzha Krishna Pillai.

Drama:

1. Amba	...	Ullur.
2. Durgadas	...	Tr. P. Kunhiraman Nayar.
3. Koottukrishi	...	Edassery.
4. Mudakkumuthal	...	N. Krishna Pillai.
5. Onpathu Radio Natakangal	...	Dr. K. M. George.
6. One-act Plays [Tiranjetutha Natakangal]	...	Selected one-act Plays—Southern Languages Book Trust.
7. Pandathe Pachan	...	C. V. Raman Pillai.

III. History of Kerala Culture and Inscriptions:

Books prescribed:

1. Koothum Kootiyattavum	...	Ammaman Tampuran.
2. Sanghakkali	...	Appan Tampuran.
3. Kootiyattam	...	K. P. Narayana Pisharoti.
4. Kathakali Prakasika	...	Mathoor Kunju Pillai.
5. Natya Rachana	...	Tekkumkattil Ramunni Nayar.
6. Kathakali Prakaram	...	Pannisseril Nanu Pillai.

7. Keralathile Natoti Natakangal	...	Dr. S. K. Nayar (Published by the University of Madras.)
8. Gadya Pushpanjali	...	Ammaman Tampuran.
9. Ithiyamala (All Parts)	...	Kottarathil Sankunni.

The following books are recommended to indicate the scope of the subject:—

1. History of Tamils by P. T. Sreenivasa Iyengar.
2. The Chera Kings of the Sangam Age by K. G. Sesha Iyer.
3. Chronology of the Early Tamils by K. N. Sivaraja Pillai.
4. Keralacharitrathile Iruladanja Edukal by P. N. Kunjan Pillai.
5. Chila Kerala Charitra Prasnangal (All Parts) by P. N. Kunjan Pillai.
6. History of Cochin, Vols. I and II by K. P. Padmanabha Menon.
7. Travancore States Manual, Vol. II by T. K. Velu Pillai.
8. Malabar Manual by Logan.
9. Malabar and Portuguese by K. M. Panicker.
10. Malabar and the Dutch by K. M. Panicker.

Books for reference by the teachers :

1. The Geography of Ancient India by A. Cunningham.
2. History of South India by K. A. Nilakanta Sastri.
3. A College Text-Book of Indian History, Vols. I and II by Sathyanatha Iyer.
4. Dravidian India by T. R. Sesha Iyengar.
5. The Pandyan Kingdom by K.A. Nilakanta Sastri.
6. The Cholas by K.A. Nilakanta Sastri.
7. Ancient India as described by Ptolemy—J. W. Mc Crindle.
8. The Periplus—J.W. Mc Crindle.
9. Natural History by Pliny.
10. The Naiks of Madura by Swaminatha Iyer.
11. Cochin State Manual—C. Achuta Menon.
12. Description of the Sea Ports of Malabar by Edge.
13. History of Kerala, Vols. I to IV—K.P. Padmanabha Menon.
14. The Land of the Perumals by Francis Day.
15. Church History of Travancore by C.N. Augur.
16. History of Travancore by P. Sankunni Menon.

17. Kerala Pazhama.
18. Some Early Sovereigns of Travancore by P.Sundaram Pillai
19. Ancient India, Vol. II—The Megalithic Burials of South India by K.R.Srinivasan.
20. Rise of the Dutch Power —Malabar by T.J. Ponnen.

Inscriptions : (Emphasis should be laid on the linguistic aspect also with a view to making clear the development of language).

1. Tharisappalli Inscription of Sthanuravi (Chila Kerala charitra Prasnangal Part II).
2. Huzur Office Plates of Karunanandakkan (TAS., Vol. I, pages 1-14).
3. Paliyam Plates of Varaguna (TAS. Vopagl. I, e. 187).
4. Thirukkakara Inscription of Indukotai Varman (TAS., Vol. III, page 166).
5. Thirukkadithanam Inscription of Bhaskara Ravi Varman (TAS., Vol. V, page 176).
6. Mampalli Copper Plate of Sri Vallabhan Katai (TAS., Vol. IV, pages 1-11).
7. Jewish Copper Plate (Chila Kerala charitra Prasnangal Part II).
8. Thirukkadithanam Inscription (TAS., Vol. V, page 181).
9. Peruneil Inscription (TAS., Vol. V, page 35).
10. Quilon Inscription of Kollam 278 (TAS., Vol. V, pages 44-46).
11. Cholapuram Inscription of Veera Kerala Varman (TAS., Vol. IV, page 17).
12. Trivandrum Inscription of Kotai Marthanda Varman (TAS., Vol. III, pages 46-52).
13. Kollur Mathom Plates (TAS., Vol. IV, pages 46-65).
14. Kilimanoor Records (TAS., Vol. V, pages 78-85).
15. Vellayani Inscription of Vira Rama Varman (TAS., Vol. III pages 33-37).
16. Inscription of Vira Raghavan (Chila Kerala charitra Prasnangal, Part II).
17. Attoor Plate of Vira Ravi Udaya Marthanda Varma (TAS., Vol. IV, pages 86-89).
18. Manalikkara Inscription of Vira Kerala Ravi Varma (TAS., Vol. III, pages 59-64).

19. Tirunelli Inscription of Bhaskara Ravi. (Ep. Ind. XVI, No. 27, pages 339-345).
20. Chokkur Inscription of Kotai Iravi (S. I. I., VII, pages 72-73.)

(A new edition containing all the important inscriptions in Malayalam Script to be edited by the University).

Part II.

1960 and 1961

Prescribed Text-Books I—Pre-Ezhuthachan Period—Prose and Poetry :

Prose :

1. Kautaliyam, Part III.
2. Dootavakyam.
3. Pracheena Malayala Gadya Matrukakal.

Poetry :

4. Anantapuravarnanam.
5. Chandrotsavam.
6. Unnineeli Sandesam.
7. Unniyachi Charitam.
8. Ramacharitam, Patalams 25-40—Ed. by P. V. Krishnan Nayar.
9. Kannassa Ramayanam—Bala kandam.

Prescribed Text-Books II—Ezhuthachan and Post-Ezhuthachan Period—Poetry :

1.	Mahabharatam—Santi Parvam.	... Thunchath Ezhuthachan.
2.	Nala Charitam III day	... Unnayi Variar
3.	Poonthanam's Works	... Jnanappans and Santhanagopalam.
4.	Ghoshayatra Tullal	... Nambiar.
5.	Girija Kalyanam	... Unnayi Variar.
6.	Ballads of North Malabar, Part I.	... Dr. C. Achutha Menon.
7.	Mayura Sandesam	... Kerala Varma.

8. Kuchelavrittam Vanchippattu. ... Ramapurathu Variar.
9. Suryakanthi ... G. Sankara Kurup.
10. Amma ... Balamani Amma.
11. Prarodanam ... Kumaran Asan.
12. Umakeralam, 11th Canto ... Ulloor S. Parameswara Iyer.
13. Christian Songs ... Selections from Keralathile Kristhava Sahtiyam by Dr. P. J. Thomas

Drama :

1. Uttara Rama Charitam ... Chathukkuti Mannadiar.
2. Sakuntalam ... Attoor Krishna Pisharoti
3. Bhagavaddutu ... Natuvam.

Reference :

History of Literature :

1. Bhasha Charitram ... P. Govinda Pillai.
2. Bhasha Sahitya Charitram ... R. Narayana Panicker.
3. Kerala Sahitya Charitram ... Ullur.

Paper VII—Special Subjects :

Tullal :

Kunchan Nambiar and his Works.

Books for Study :

1. Kalyana Sauganthikam.
2. Tiripuradahanam.
3. Nala Charitam.

Books for consultation :

1. Kunchan Nambiar ... P. K. Narayana Pillai.
2. Kunchan Nambiar. ... K. S. Ezhuthachan.
3. Kunchan Nambiar. ... M. R. Balakrishna Variar.
4. Kunchan Nambiar. ... Chummar.

(Relevant portions from the books History of Literature by R. K. Panicker and Ulloor.

Paper VI :

Grammar, History of Language and Philology :

1. Kerala Paniniyam ... A. R. Raja Raja Varma.
2. Vyakarana Mitram ... M. Seshagiri Prabhu.
3. Leelatilakam 1 to 3 Silpas ... Any Edition.
4. Language ... Bloomfield.
5. Language, its Origin, Theory and Development ... Jesperson.
6. Keralabhashayute Vikasa Parinamangal ... Elankulam P. N. Kunjan Pillai.
7. A Comparative Grammar of the Dravidian Languages. ... Caldwell.

Reference :

1. Foundations of Language ... Gray.
2. Linguistic Survey of India ... Griersen.
3. The grammatical structure of Dravidian Languages. ... Jules Bloch.
4. Keralabhasha Vijnaneeyam ... K. Godavarma.
5. Evolution of Malayalam ... A. C. Sekhar.
6. Introduction to Comparative Philology ... Gune.
7. Language, a linguistic introduction to History ... Vendrys.
8. Introduction (Pp. 1-149)—Origin and Development of Bengali Language, Vol. I, and Appendix B ... S. K. Chatterji.
9. Grammar in Lilatilakam ... L. V. Ramaswamy Iyer.
10. The Relation between the Aryan and Dravidian Languages ... L. A. Ravi Varma.

Optional Language for Malayalam Main

(i) *Sanskrit as an Optional Language* (1960 and 1961)

(1) Meghasandesa.

(2) Vikramorvasiya.

(3) Kadambari Sangraha (from the beginning to the end of Sukanasopadesa).

(ii) *Tamil as an Optional Language* 1960 and 1961:

Same as for Paper I under Part II for the B.A. and B.Sc. Examinations of the same year Tamil.

(iii) *Kannada as an Optional Language* (1960 and 1961)

(*a*) *Poetry*:

(1) The following selections from Kavya Sangraha—published under the auspices of Southern Languages Book Trust by Samaja Pustakalaya, Dharward:—

1. Basaveswarana Vacanagalu (pp. 61-65), 92 lines.
2. Uttarana Yuddabhigamana (pp. 123-132), lines 216.
3. Dasara Padagalu (p. 144-150), lines 100

(2) The following selections from 'Kavya Sri' (published under the auspices of the Southern Languages Book Trust by the Sri Krishna Press, No. 10, 3rd Road, Chamarajpet, Bangalore-2)

(1) Kannadigara Tayi (pp. 4-6), lines 70.
(2) Dalimbe (p. 66), lines 14.
(3) Mandara huva (p. 87), lines 20.
(4) Nidu Patheyavanu (pp. 88-89), lines 24.
(5) Nanu Badavi (p. 97), lines 20.
(6) Nagunaguta haguravagu (pp. 112-113), lines 30.
(7) Virara masana (pp. 157-160), lines 96.
(8) Anna Purnege (pp. 169-171), lines 56.
(9) Railu Raste (pp. 46-48), lines 53.

(*b*) Santala by K. V. Iyer.

(*c*) Bhasana Ekanka natakagalu—Urubhanga Madhyama Vyayoga Karna Bhara. (By L. Gundappa).

CHAPTER XLVII

DEGREE OF MASTER OF SCIENCE (M.Sc.)

Conditions of admission to M.Sc. Degree.

1. A candidate who has passed the B.A. Degree in a Science subject or the B.Sc. Degree examination of this University or an examination of some other University accepted by the Syndicate as equivalent thereto shall be permitted to appear and qualify for the M.Sc. Degree Examination of this University after a course of study of two academic years in a constituent or an affiliated college of this University.

Eligibility for admission.

2. A candidate to be eligible to pursue a course of study for the M.Sc. Degree in any subject should have previously qualified for the Pass Degree with the particular subject in the main standard, provided that in the case of Branch II—Statistics, a candidate who has passed the B.A. Degree or the B.Sc. Degree or the Hons. with Statistics as one of the subjects can be admitted to the M.Sc.

Branches of study.

3. The course of study for the Degree shall be in any one of the following main branches of knowledge according to a syllabus to be prescribed from time to time :

Branch I : Mathematics
Branch II : Statistics.
Branch III : Physics.
Branch IV : Chemistry
Branch V : Botany.
Branch VI : Zoology.
Branch VII : Geology.
Branch VIII : Geography.
Branch IX : Physiology.

Course of study—Details. 4. The course of study in the different Branches shall be as follows:

Branch I—Mathematics

1. Algebra and Algebraic Geometry
2. Analysis I.
3. Mechanics I.
4. Analysis II.
5. Mechanics II.
6. Optional subject I.
7. Optional subject II.

Branch II—Statistics

1. Statistics I.
2. Statistics II.
3. Statistics III.
4. Practical I.
5. Statistics IV.
6. Statistics V.
7. Statistics VI—Optional subject
8. Practical II.
9. Practical III.

Branch III—Physics

1. Mathematical Physics.
2. Properties of Matter and Sound.
3. Heat and Thermodynamics.
4. Optics and Spectroscopy.
5. Electricity, Magnetism and Electronics.
6. Modern Physics I.
7. Modern Physics II.
8. Practicals.

Branch IV—Chemistry

1. Inorganic Chemistry I.
2. Physical Chemistry I.
3. Organic Chemistry I.
4. Inorganic Chemistry II.
5. Physical Chemistry II.
6. Organic Chemistry II.
7. Practicals.

Branch IV-A—Bio-chemistry

1. Physico-Chemical aspects of Bio-chemistry.
2. Physiology.
3. Organic aspects of Bio-chemistry.
4. Enzymes and intermediary metabolism.
5. Food and Nutrition.
6. Bio-chemistry of micro-organisms.
7. Practicals.

Branch V—Botany

1. Algae, Fungi, Lichens, Bacteria, Virus and Plant Pathology.
2. Bryophyta, Pteridophyta and Gymnospermae.
3. Angiosperms, Morphology and Embryology.
4. Practicals I, II and III.
5. Physiology and Ecology.
6. Cytology, Genetics, Evolution and Economic Botany.
7. Taxonomy and Anatomy.
8. Practicals IV, V and VI.

Branch VI—Zoology

1. Invertebrata.
2. Chordata including South Indian fauna.
3. Cytology and Genetics.

Optional Subject:—

4. Any one of the following :
   - (i) Entomology.
   - (ii) Parasitology.
   - (iii) Protozoology.
   - (iv) Marine Zoology.
   - (v) Fishery Biology.
5. Embryology and Evolution.
6. Animal Physiology and Ecology.
7. Practicals.

Branch VII—Geology

1. General and Structural Geology.
2. Advanced Crystallography and Mineralogy.
3. Palaeontology, General Stratigraphy and Indian Geology.
4. Practicals I and II.
5. Surveying and Records.
6. Petrology.
7. Economic Geology.
8. Applied Geology.
9. Practicals III and IV.
10. Geological Mapping and Records.

Branch VIII—Geography

1. Geography of India.
2. Geography of Asia.
3. Climatology.
4. Geomorphology.
5. Cartography.
6. Photo-Grammetry and Aerial Maps or Photographs or Geography and Planning.
7. Practicals.

Branch IX—Physiology

(*Vide* Syllabus.)

Examinations when held.

5. There shall be two examinations, one at the end of the first year, viz., Part I and the other at the end of the second year, viz., Part II except in the case of Branch I—Mathematics where the examination will be held at the end of the second year.

The examination for the Degree shall consist of written and practical tests (including *viva voce*) where prescribed. Each candidate shall submit his laboratory note-books containing the record of all his practical work performed during the period of study for the examination. The record shall be countersigned by the Professor under whom the candidate has worked do certify it to be a *bona fide* record of work performed by the candidate. It shall be submitted on the first day of the practical examination to the examiners engaged in conducting the examination.

Scheme of examination.

6. The following shall be the scheme of examination for the various branches :

Branch I—Mathematics

			Hours	*Mark*
1.	Algebra and Algebraic Geometry	...	3	200
2.	Analysis I	...	3	200
3.	Analysis II	...	3	200
4.	Mechanics I	...	3	200
5.	Mechanics II	...	3	200
6.	Optional subject I	...	3	200
7.	Optional subject II	...	3	200
			Total ...	1400

Branch II—Statistics

Part I

			Hours	Marks
I.	*Written Papers*—			
	1. Statistics I	...	3	150
	2. Statistics II	...	3	150
	3. Statistics III	...	3	150
II.	*Practical*—			
	4. Practical I	...	4	100
	5. Record of Practical	...		50

Part II

			Hours	Marks
I.	*Written Papers*—			
	1. Statistics IV	...	3	150
	2. Statistics V	...	3	150
	3. Statistics VI	...	3	150
II.	*Practical*—			
	Practical II	...	4	125
	Practical III	...	4	125
	Record of Practical, Field work and *viva voce*	...		100
			Total ...	1400

Branch III—Physics

Part I

		Hours	Marks
1. Mathematical Physics	...	3	150
2. Properties of Matter and Sound	...	3	125
3. Heat and Thermodynamics		3	125
4. Practical examination I—Properties of Matter and Sound	...	3	100
5. Practical examination II—Heat and Optics	...	3	100

PART II

		Hours	Marks
1.	Optics and Spectroscopy ...	3	125
2.	Electricity, Magnetism and Electronics ...	3	125
3.	Modern Physics I ...	3	125
4.	Modern Physics II ...	3	125
5.	Practical examination III —Electricity, Magnetism and Electronics ...	3	100
6.	Practical examination IV—Advanced experiments.	6	100
7.	Laboratory note-books for the entire course ...		100
		Total ...	1400

Branch IV—Chemistry

PART I

	Hours	Marks
Written—		
Inorganic Chemistry I ...	3	150
Physical Chemistry I ...	3	150
Organic Chemistry I ...	3	150
Practical—		
Inorganic Chemistry I ...	6	60
Physical Chemistry I ...	6	60
Organic Chemistry I ...	6	60
Viva Voce ...		30
Laboratory note-books ...		40

PART II

		Hours	Marks
Written—			
Inorganic Chemistry II	...	3	150
Physical Chemistry II	...	3	150
Organic Chemistry II	...	3	150
Practical—			
Inorganic Chemistry II	...	6	60
Physical Chemistry II	...	6	60
Organic Chemistry II	...	6	60
Viva Voce	...		30
Laboratory note-books	...		40
		Total ...	1400

Branch IV-a—Bio-Chemistry

PART I

		Hours	Marks
Written—			
Bio-chemistry I	...	3	150
Bio-chemistry II	...	3	150
Bio-chemistry III	...	3	150
Practical—			
Bio-chemistry I	...	6	90
Bio-chemistry II	...	6	90
Viva Voce	...		30
Laboratory Note-Books	...		40

PART II

		Hours	Marks
Written—			
Bio-chemistry IV	...	3	150
Bio-chemistry V	...	3	150
Bio-chemistry VI	...	3	150
Practical—			
Bio-chemistry III	...	6	90
Bio-chemistry IV	...	6	90
Viva Voce	...		30
Laboratory Note-Books	...		40
		Total ...	1,400

Note.—The scope of the written and practical tests for each papers or practical will be as indicated in the Syllabi for each part.

Branch V—Botany

PART I

			Hours	Marks
1.	Written Paper I	...	3	125
2.	Written Paper II	...	3	125
3.	Written Paper III	...	3	125
4.	Practical I	...	4	75
5.	Practical II	...	4	75
6.	Practical III	...	4	75
7.	Records and Slides	...		50
8.	*Viva Voce*	...		30

PART II

			Hours	Marks
1.	Written Paper IV	...	3	125
2.	Written Paper V	...	3	125
3.	Written Paper VI	...	3	125
4.	Practical IV	...	4	75
5.	Practical V	...	4	75
6.	Practical VI	...	4	75
7.	Records and Slides	...		40
8.	Herbarium	...		50
9.	*Viva Voce*	...		30
			Total ...	1400

Note.—The scope of the practical shall be the same as the theory papers.

Branch VI—Zoology

PART I

1.	Written Paper I	...	3	150
2.	Written Paper II	...	3	150
3.	Written Paper III	...	3	150
4.	Two practicals relating to the above (3 hours each practical and 100 marks for each examination)	...		200

PART II

1.	Written Paper IV—Optional subject	...	3	150
2.	Written Paper V	...	3	150
3.	Written Paper VI	...	3	150
4.	Two practicals relating to the above (3 hours each practical and 100 marks for each examination)	...		200
5.	Laboratory Records and slides	...		100
			Total ...	1400

Branch VII—Geology

Part I

		Hours	Marks
1.	Written Paper I ...	3	150
2.	Written Paper II ...	3	150
3.	Written Paper III ...	3	150
4.	Practical I — Advanced Crystallography and Mineralogy ...	6	100
5.	Practical II — Structural Geology and Palaeontology ...	6	100
6.	Surveying and Records ...		50

Part II

1.	Written Paper IV ...	3	150
2.	Written Paper V ...	3	150
3.	Written Paper VI ...	3	150
4.	Practical III — Petrology...	6	100
5.	Practical IV — Economic Geology and Applied Geology ...	6	100
6.	Geological Mapping and Records ...		50
		Total ...	1400

Note.—The scope of the written papers shall be as in the course of studies.

Branch VIII—Geography

PART I

		Hours	Marks
I.	Geography of India—		
	Theory	...	150
	Practical	...	60
	Note-books	...	10
II.	Geography of Asia—		
	Theory	...	150
	Practical	...	60
	Note-books	..	10
III.	Climatology—		
	Theory	...	150
	Practical	...	60
	Note-books	...	10

PART II

IV.	Geomorphology—		
	Theory	...	150
	Practical	...	60
	Note-books	...	10
V.	Cartography—		
	Theory	...	150
	Practical	...	60
	Note-books	...	10
VI.	Photo—Grammetry and Aerial Maps or Photographs—		
	Theory	...	150
	Practical	...	60
	Note-books	...	10
	Or		
VII.	Geography and Planning	...	220
	Viva-Voce	...	80
	Total	...	1,400

Note : There will be no practical test in the subject 'Geography and Planning'.

Branch IX—Physiology

(*Vide* Syllabus)

Eligibility for the Degree.

7. A candidate shall be declared qualified for the Degree of Master of Science if he passes the examination (Parts I and II where prescribed) securing the requisite marks.

A candidate shall be deemed to have passed Part I of the examination for the Degree, if he obtains not less than 45 per cent of the marks in each of the papers or division, as the case may be. A candidate who fails in any subject or in any division shall be required to sit for the examination in such subject or division along with Part II of the examination.

A candidate shall be deemed to have passed Part II of the examination, if he obtains not less than 45 per cent in each division or subject of the examination as the case may be and not less than 50 per cent of the aggregate marks in Parts I and II together.

In the case of Branch I—Mathematics, a candidate shall be deemed to have passed the examination if he obtains not less than 40 per cent of the marks in each subject or division and not less than 45 per cent of the aggregate marks.

Divisions in the subjects for examinations.

8. The divisions of the subjects in the branches shall be as follows :—

Branch I—Mathematics

(a) Algebra and Algebraic Geometry, Analysis I and II.

(b) Mechanics I and II.

(c) Optional subjects I and II.

Branch II—Statistics

(a) Statistics I, Statistics II, Statistics III, Practical I and Record of Practical.

(b) Statistics IV, V and VI.

(c) Practical II, III and Record of Practical, Field work and viva.

Branch III—Physics

(a) Mathematical Physics; Properties of Matter and Sound; Heat and Thermodynamics.

(b) Practical examinations I and II.

(c) Optics and Spectroscopy; Electricity, Magnetism and Electronics; Modern Physics I and Modern Physics II.

(d) Practical examinations III and IV and Laboratory note-books.

Branch IV—Chemistry

(a) Written Papers: Inorganic Chemistry, Physical Chemistry and Organic Chemistry.

(b) Practical examinations in Inorganic Chemistry I, Physical Chemistry I and Organic Chemistry and *viva voce* and Laboratory note-books.

(c) Written Papers: Inorganic Chemistry II, Physical Chemistry II and Organic Chemistry II.

(d) Practical examinations in Inorganic Chemistry II, Physical Chemistry II and Organic Chemistry II and *viva voce* and Laboratory note-books.

Branch IV-a—Bio-chemistry

(*a*) Written Papers: Bio-chemistry I, II & III.

(*b*) Practical examinations in Bio-chemistry I & II and *viva voce* and Laboratory note-books.

(*c*) Written Papers: Bio-chemistry IV, V & VI.

(*d*) Practical examinations in Bio-Chemistry III & IV and *viva voce* and Laboratory note-books.

Branch V—Botany

(a) Written Papers I, II and III.

(b) Practicals I, II and III and Records, Slides and *Vive Voce.*

(c) Writen Papers IV, V and VI.

(d) Practicals IV, V and VI and Records, Slides, Herbarium and *Viva Voce.*

Branch VI—Zoology

(a) Written Papers I, II and III.

(b) Two Practicals.

(c) Written Papers IV, V and VI.

(d) Two Practicals and Laboratory Records and Slides.

Branch VII—Geology

(a) Written Papers I, II and III.

(b) Practicals I and II and Surveying and Records'

(c) Written Papers IV, V and VI.

(d) Practicals III and IV and Geological Mapping Records.

Branch VIII—Geography

(a) Geography of India, of Asia and Climatology.

(b) Practicals with regard to (*a*) above and Record note-books.

(c) Geomorphology, Cartography, Photo-Grammetry and Aerial Maps or Photographs or Geograghy and Planning.

(d) Practicals and Record note-books with regard to (*c*) above.

Branch IX—Physiology

(*Vide* Syllabus)

Classification of successful candidates.

9. (*a*) Candidates who pass the examination for the Degree at the first appearance shall be ranked according to the order of merit. There shall be two classes—First and Second.

(*b*) Candidates who secure not less than sixty per cent of the aggregate marks in the whole examination (Parts I and II where such parts exist) shall be declared to have passed the examination in the First Class, provided they pass the examination (Parts I and II wherever prescribed) at the first appearance.

(*c*) All other successful candidates shall be declared to have passed the examination in the Second Class.

(*d*) Candidates who obtain 75 per sent of the marks and above in any subject or division shall be deemed to have passed the subject or division with distinction, provided they pass the examination (Parts I and II wherever prescribed) at the first appearance.

Subsequent appearance.

10. (*a*) Candidates who fail in any tubject or any division under Part I shall be required to sit again for the examination in such subject or division along with Part II of the examination.

(*b*) Candidates who fail in any subject or any division under Part II of the examination shall be required to sit again for the examination in all the subjects of the examination under Part II. Credit shall be given to the pass obtained in Part I of the examination for such subsequent appearance.

(*c*) In the case of Branch I — Mathematics, candidates who fail in any subject or division shall be required to sit for the whole examination.

Restriction of appearance for the examination.

11. No candidate shall be permitted to take the examination (Part II wherever prescribed) for the M.Sc. Degree on more than three occasions.

Symbolic representation of marks.

12. Symbolic representation shall be adopted in declaring the result and a statement of marks shall not be furnished :

Symbol A will denote	60	per cent and above of the marks.
„ B „	50	per cent and above but below 60 per cent of the marks.
„ C „	40	per cent and above but below 50 per cent in the case of Branch I—Mathematics and 45 per cent and above but below 50 per cent of the marks in the case of the other Branches.

Symbol D will denote Distinction as having obtained 75 per cent and above in any one of the subjects or division ; provided the candidate passes the examinations for the Degree at the first appearance.

„ F „ Failure.

M.Scs. to qualify in another Branch.

13. A candidate who has qualified in one Branch may be permitted to qualify in another Branch after a regular course of study for two years, in a constituent or an affiliated college.

Honours Degree holders to qualify for M.Sc.

14. A candidate who has passed the B.A. (Hons.) in a Science subject or the B.Sc. (Hons.) Degree Examination of this University or has taken M.A. by efflux of time after having passed the B.A. (Hons.) in a Science subject or B.Sc. (Hons.) Degree examination, shall be permitted to appear for the M.Sc. Degree Examination in the particular main subject in which he has qualified for the Honours Degree after putting in a course of study for one year in a constituent or an affiliated college.

Examination once a year.

15. The examination for the M.Sc. Degree shall be held once a year.

SYLLABUSES

Branch I—Mathematics

There will be seven papers, five compulsory and two optional. The compulsory papers will be designated as follows : Algebra and Algebraic Geometry, Analysis I, Analysis II, Mechanics I, Mechanics II. There will be three groups, the first group consisting of Algebra and Algebraic Geometry, Analysis I, Analysis II; the second group consisting of Mechanics I and Mechanics II; the third group consisting of the two optional papers. There will be only one examination at the end of the second year.

In teaching any one of the prescribed subjects, principles should be insisted upon and illustrations should be typical. Numerous examples which are only meaningless and artificial or negligible, variations of minor illustrations should be avoided. The aim of the M.Sc. course is to impart a sound knowledge of modern Mathematics and not to develop a certain skill in solving tricky questions.

PAPER I.

Algebra and Algebraic Geometry.

Fuller treatment of the Pass Course.

Algebra—Group Theory :—Axioms of Group Theory—Examples of Groups—Isomorphism—Matrix groups and Groups of Operators.

(Treatment strictly defined by : L. Mirsky : An Introduction to Linear Algebra, Oxford Clarendon Press, 1955, Chapter IX, sections 1 and 2.).

Vector spaces and Matrices:—Algebra of vectors—Linear manifolds—Bases—Inner product and orthonormal bases—Algebra of Matrices and applications to linear substitutions.

(Treatment strictly defined by: L. Mirsky: An Introduction—Chapter II, Chapter III, section, 1 to 3 and 6, Chapter IV, section 2).

Algebraic Geometry :—Modern approach to Geometry—Projective Geometry in one dimension—Principle of duality—Specialization : Affine and euclidean Geometries.

Properties of the conic in projective and euclidean Geometries—Linear systems of conics—Plane collineation and correlation.

Projective Geometry in three dimensions—Subordinate Geometries—Principle of duality—Homographic ranges and pencils—Affine and euclidean Geometries in three dimensions.

The Quadric: its affine and euclidean specializations—Linear systems of quadrics—Collineation and correlation in three dimensions.

Linear complexes and congruences in three dimensions.

Idea of the n-dimensional projective Geometry.

(Treatment strictly defined by : J. G. Semple and G. T. Kneebone : Algebraic Projective Geometry, Oxford Clarendon Press, 1952, Chapter III to Chapter VII, Chapter IX to Chapter XI and Chapter XIII to Chapter XVI exclusively).

Books for Reference :

C. C. MacDuffee : Vectors and Matrices, Carus Series.

Ferrar : Finite Matrices.

J. A. Todd : Projective and Analytical Geometry.

E. A. Maxwell : Methods of Plane Projective Geometry.

J. W. Young : Projective Geometry, Carus Series.

H. S. M. Coxeter : Non euclidean Geometry, University of Toronto Press.

PAPER II.

Analysis I.

Real numbers. Dedekind's theorem. Limits of numerical sequences : upper and lower bounds, upper and lower limits. Limits of sequences of functions of a real, or of a comlex, variable. Numerical series : rearrangement of terms and multiplication of series. Abel's lemma. Idea of Cesaro summability. Infinite products and double series.

Function of a real variable: continuity and uniform continuity. Monotonic functions and functions of bounded variation.

Limits of a function of a real variable at a point.

Sequences of functions : Convergence and uniform convergence. Functions of several variables.

Derivatives and partial derivatives.

Rolle's theorem, mean value theorem and Taylor's formula for functions of one real variable. Indeterminate forms.

Taylor's formula for functions of several variables. Taylor's series for functions of one or several variables.

Fuller treatment of elementary types of differential equations : variables separable, linear equation, Bernoulli's equation, homogeneous

equation, integrating factors, in the simple cases, equations solvable for x or for y. Clairaut's equation. Depression of order when one variable is absent.

Existence theorem for a differential equation of the form $dy/dx = f(x,y)$, when f is Lipschitz continuous.

Elementary partial differential equation of the first order: Lagrange equation: $Pp+Qq=R$. Charpit's method. The standard forms: $f(p,q)=0$, $f(z,p,q)=0$, $f(x,p)=h(y,q)$ and $z=px+qy+f(p,q)$.

PAPER III.

Analysis II.

Integration of a function of a real variable according to Cauchy: integration of a function continuous in a finite number of closed intervals and of a function continuous in an open interval. First and second mean value theorems of integral calculus. Multiple integrals and exchange of order of integration when the integrand is continuous. integration of sequences, or of series, of continuous function of a real variable. Differentiation and Integration under the integral sign with finite or infinite limits.

Plane curves : Curvature and contact of plane curves. Envelope, involutes and evolute.

Algebraic plane curves : Singular points and asymptotes.

Maxima and minima : Lagrange multipliers.

Analytic function of one complex variable. Cauchy-Riemann conditions. Their geometric interpretation. Power series : radius of convergence. Bilinear transformation of the plane. Cauchy theorem on contour integration.

Idea of the Lebesgue integral. (Treatment strictly defined by F. Riesz and B.Sz. Nagy : Functional Analysis, Chapter II ; Nos. 16 to 20). The Riemann integral as a particular case of the Lebesgue integral.

Elementary treatment of the Fourier series of a function integrable in the sense of Cauchy and of bounded variation.

Books for Reference :

G. H. Hardy : Pure Mathematics.

Goursat-Hedrick : Mathematical Analysis.

Bromwich : Infinite series.

Knopp : Infinite series.

Whittaker and Watson : A course of Modern Analysis.

C. Jordan : Cours d'Analyse, Vols. I and II.

E. Picard : Traite d'Analyse, Vol. I.

W. Rogosinsky : Fourier series.

Ch.de la Vallee-Poussin : Course d'Analyse infinitesimale.

PAPER IV.

Mechanics I.

Vector Algebra and Vector Analysis : Gradient, divergence and curl. Stoke's and Green's theorems (treatment as in Rutherford : Vector methods, University Mathematical Texts).

Fuller treatment of the B.Sc. syllabus in Statics.

Forces in three dimensions. Central axis. General conditions of equilibrium Stability of equilibrium. (Vector treatment must be adopted).

Principle of virtual work.

Equilibrium of inextensible strings, including strings resting on a smooth or rough curve.

Elementary notions of Hydrostatics : Pressure, Fluid at rest under gravity and central forces, floating bodies.

(*Remarks* : Explicitly excluded from the syllabus are : compounding of wrenches, the cylindroid, reciprocal screws, conjugate lines, null lines and null planes).

Deformable bodies : Homogeneous strain, stretches and shears. Strain quadric. Stress. Simple stresses. Bending moments and shearing stresses. Young's modulus. Bulk modulus. Poisson's ratio. (Standard as in H. C. Plummer, Principles of Mechanics, Chapter IX).

PAPER V.

Mechanics II.

Velocity, acceleration and angular velocity vectors.

Coplanar moving axes. Rate of change of a vector relative to moving axes. Instantaneous centre and axes of rotation.

Newton's law of motion. Different kinds of forces.

Rectilinear motion of a particle. Simple harmonic motion. Damped oscillations with applied force.

Coplanar motion of a particle. Projectiles in a resisting medium. Orbits. Planetary motions. Kepler's laws.

Impulsive forces, impacts.

Three dimensional motion. Motion relative to the Earth.

Motion of a system of particles. Motion of mass-centre. Moment of momentum. Extension to rigid bodies.

Two dimensional motion of a rigid body under finite and impulsive forces. Compound pendulum. Eulerian angles. Euler's equation of motion. Steady precession of a gyrostat. Notion of a spinning top.

Generalized co-ordinates. Lagrange's equations for a holonomic system. Lagrangian function. Ignorable co-ordinates. Hamilton's equations. Hamilton's principle. Principle of least action.

(Treatment and Standard as in "Classical Mechanics" by D. E. Rutherford, University Mathematical Texts, 1951).

Specially in Mechanics, emphasis must be laid on the fundamental principles rather than on solving complicated problems.

Books for Reference :

Banach : Mechanics.

J. L. Synge and B. A. Griffith : Principles of Mechanics.

W. H. Besant and Demsey : A Treatise of Hydromechanics, Part I, Hydrostatics, Chapter I to Chapter IV.

Milne : Vectorial Mechanics.

OPTIONAL SUBJECTS

(1) Fluid Dynamics

Equations of motion—Differentiation following the fluid. Equation of continuity. Boundary conditions. Equations of motion of an inviscid fluid. Pressure equation. Irrotational motion. Kinetic energy for finite and infinite liquids. Kelvin's minimum energy theorem. Mean value of velocity. Potential. Constancy of circulation. Permanence of vorticity. Uniqueness theorem.

Two dimensional motion—Stream function. Complex potential. Circle theorem. Application of conformal mapping. Streaming motion past circular and elliptic cylinders. Blasius theorem. Joukowsky transformation. Theorem of Kutta and Joukowsky. Sources, sinks, doublets. Methods of images.

Axisymetric motion—Stoke's stream function. Line sources. Rankine solids. Sphere in a stream. Moving sphere.

Viscous flow—Equation of motion of a viscous liquid. Equation satisfied by vorticity. Decay of vorticity. Dissipation of energy. Flow of heat in a fluid. Flow between parallel plates. Flow through a pipe.

Supersonic and Subsonic Flow—Thermodynamical consideration. Steady motion. Motion distrurbance. Characteristic. Flow round a corner. Shock waves.

Books for Study :

L.M. Milne Thompson : Thoeretical Hydrodynamics (Second edition).

Detailed Study: Chapters III an IV.

Restricted Study : Chapters VI to VIII, XV, XIX and XX.

(2) Theory of Waves

Introduction—Various forms of wave equations and their solutions. Principle of superposition. Method of separation of variables. Equation of Telegraphy. Harmonic waves.

Waves in strings—Transverse vibration of finite and infinite strings. Energy. Reflections at a change of density and concentrated load. Damped vibration. Method of reduction to steady waves.

Waves in membranes—Rectangular and circular membranes.

Longitudinal waves in bars and springs—Free vibration. Bar clamped at two ends. Normal coordinates. Suspended spring carrying a load.

Waves in liquid—Tidal waves in straight channel and rectangular or circular tanks. Paths of particles. Method of reduction to steady waves. Surface waves in a straight channel and rectangular or circular tanks. Energy and transmission of energy. Harmonic waves at the common boundary. Capillary waves.

Sound waves—Waves along a unifrom straight tube. Problems with spherical symmetry. Progressive wave in a tube of varying section.

Electric waves—Maxwell's equations. Waves in non-conductive media. Transmission of energy. Reflection and refraction of light waves. Internal reflection.

General properties—Doppler effect. Beats. Group velocity Wave packet. Kirchoff's solution. Fresnel's principle. Praunhoffer diffraction. Retarded potential.

Books for Study :

1. C. A. Coulson : Waves, University texts series.
2. M. Plank : The Mechanics of deformable bodies translation H. L. Brose, Part II, Chapters III and IV (restricted).
3. L. M. Milne—Thompson : Theoretical Hydrodynamics, 2nd edition, 1949, Chapter XIV.

(3) Theory of Functions of a complex variable

Conformal representation. Cauchy integral. Function analytic in a circle and in a ring. Laurent's expansion. Poles and isolated essential singularities. Maximum modulus theorem. Schwarz lemma and Caratheodory inequality . Weierstrass theorem on isolated essential. singularities. Series of analytic functions. Mittag-Leffler representation of meromorphic functions. Infinite products.

Residues. Application of the theory of residues to the evaluation of definite integrals. Number of poles and zeros of a meromorphic function inside a simple contour. Jensen's and Lagrange's formulae.

Impossibility for a uniform function to have more than two independent periods. Elliptic functions. General theorems. The Weierstrass' function and its fundamental properties.

Weierstrass' theory of analytic continuation. Definition of singular points and of natural boundary.

Definition of an analytic function of two variables. Taylor series. Existence theorem for the roots of an equation of the form

$$y^n + \sum_{i=1}^{n} a_i(x)\, y^{n-i} = 0$$

where x and y stand for complex variables, the $a_i(x)$'s for analytic functions of x vanishing at x = 0. Cycles. The roots which correspond to a cycle of order p are expressible by power series in $x^{1/p}$.

Integral functions : exponent of convergence and order. Hadamard factorization theorem.

Except for the last paragraph, the treatment is defined by the relevant portions of Goursat, Vol. II, Part I.

For Integral Functions, the treatment is defined by the relevant portions of Titchmarsh : The Theory of Functions.

Books for reference :

E. Borel : Lecons surla Theorie des Fonctions Entieres.

Valiron : Lectures on the General Theory of Integral Functions

P. Dienes : The Taylor series.

Whittaker and Watson : A course of modern Analysis.

Ahlfors : Lectures on Functions of a complex variable.

(4) Theory of Functions of a real variable

Sets of measure zero ; properties holding almost everywhere.

Bounded variation function. Lebesgue theorem about its derivative and Denjoy theorem about its derivate numbers.

Fuller treatment of the Lebesgue integral. Schwarz, Holder and Minkowsky inequalities. Measurable sets and measurable functions. Absolute continuity and indefinite integrals. Decomposition theorem for function of bounded variation.

The L^2 space. Convergence in the mean. Riesz-Fischer theorem. Weak convergence. Orthonormal systems of functions in L^2 Linear functionals and their continuations.

The L^p ($p \geq 1$) space and its linear functionals. Convergence in the mean.

Definition of the Lebesgue integral based on the notion of measure. Egoroff and Lusin theorems.

Stieljes integral. Linear functional in the space of continuous functions defined in a closed interval. Approximations theorems. Stielies-Lebesgue integral. Its reduction to a Lebesgue integral The notion of Daniell integral.

(Treatment strictly defined by F. Riesz and B.Sz. Nagy: Functional Analysis, 1955—Ungar Publishing Co., N.Y.—Blackie and Son, Ltd.).

Books for reference :

C. de la Vallee-Poussin : Integrals de Lebesgue, Fonctions d'ensemble, Classes de Baire.

S. Saks : Theory of the Integral.

P. R. Halmos: Measure Theory.

(5) Abstract Algebra and Galois Theory

Part I—Group theory, normal divisors and quotient group Homomorphism theorems. Jordan-Holder composition series. Direct products. Finite groups, permutation groups. Simplicity of the alternating group on more than 4 symbols. Finite abelian group and the fundamental structure theorem.

Rings and rings with operators. Quotient field of an integrity domain. Ideals, quotient rings, homomorphism theorems. Ideal sum, ideal product, residual quotient. Divisibility of elements and unique factorization in a principal ideal ring. Polynomial rings and their unique factorization when they are over a unique factorization ring.

Field Theory : Prime field, characteristic. Transcendenta and Algebraic extensions. Dimension of a vector space and degree of a field extension. Splitting field. Conjugate elements and conjugate subfields Normal and separable extensions. Theorem of the primitive element.

Part II—Galois Theory—Fixed field. If F is the fixed field of E under a group G of automorphisms of E, E : F=G : 1. Galois fundamental theorem about finite Galois extensions of a field. Roots of unity. Galois fields. Cyclotomic fields. Galois theory of equations. Necessary and sufficient condition that an equation be solvable by radicals. Impossibility to solve by radicals the general equation of degree greater than four. Constructions by ruler and compass.

(6) Abstract Algebra and Matrix Theory

Part I—is the same as under (5).

Part II—Matrix Theory : the row rank of a matrix over a skew-field is equal to its column rank. Matrices as endomorphism operators of A-modules. Determinant, resultant, discriminant. Congruence relation for matrices over a euclidean ring ; invariant factors and elementary divisors. General theorem of decomposition for abelian groups with operators forming a euclidean ring. Similarity relation for matrices over a field : elementary divisors, characteristic and minimum polynomial, Cayley theorem. Quadratic and hermitian

forms. Inertia index and reduction to canonical forms. Linear operators in a vector space (of finite dimension): eigenvalues and eigenvectors. Secular equation in the case of symmetric, hermition and skew-symmetric matrices.

N.B.—A student can offer *only one* of these last two optional subjects.

Books for reference for (5) (*and* (6):

B.L. Vander Waerden: Modern Algebra, Vols. I and II.

N. Jacobson: Lectures in Abstract Algebra.

E. Artin: Galois Theory.

N. Bourbaki: Algebra, Vols. I and IV.

A. A. Albert: Modern Higher Algebra.

C. Racine: Introduction to Abstract Algebra.

(7) Potential Theory

Vector algebra and vector analysis. Line and surface integrals. The Stocke's and Green's theorems.

Newtonian potentials: at points of free space they are analytic and satisfy Laplace equation. (Expansions in series of Legendre polynomials and spherical harmonics are explicitly excluded).

Potential of volume distribution at points occupied by masses, the density satisfying a Holder condition. Poisson's equation. Potential of simple distribution on surfaces satisfying Poincare condition, the density being continuous: discontinuity of the normal derivative at points of the surface. Potential of double distribution, the moment being continuous and the surface of distribution satisfying Poincare's condition. Discontinuity of the potential at points of the surface.

Simple applications to the Theory of Newtonian Attraction and to Electrostatics.

Logarithmic potential: its relation to the newtonian potential and to the Theory of Analytic Functions of a complex variable.

Harmonic functions. General properties. Gauss' mean value theorem and its converse. Uniqueness of the solution of the Dirichlet problem. Harmonic functions in infinite domains. The Dirichlet problem for the sphere. Poisson integral. Extension of Gauss' mean value theorem to Potentials. Harnack's first and second theorems.

Poincare's sweeping out method to solve the Dirichlet problem in three dimensions. The case of two dimensions. Green's function. Application of the sweeping out method to the problem of conformal mapping. (Syllabus defined by the relevant portions in C. Racine: Introduction to Potential Theory).

Books for reference :

H. Poincare : Potentiels newtoniens.

O. D. Kellog : Foundations of Potential Theory.

E. Picard : Traite d'Analyse, Vol. II.

C. Jordan : Cours d'Analyse, Vols. I and II.

Courant and Hilbert : Methoden der Mathematischen Physik.

(8) Statistics

(*a*) *Probability Theory*—Rules of Probability, conditional probability. Mathematical expectation. Law of large numbers. Bernoulli's theorem. Tchebycheff's inequality. Probability distributions and transformations. Binomial and normal distributions. Poisson limit. Characteristic functions and their applications. The inversion theorem. Fundamental limit theorems. Inverse probability and Baye's theorem.

(*b*) *Statistical theory*—(i) Frequency distributions (discrete and continuous) and their graphs. Measures of central tendency, dispersion, skewness and kurtosis. Moments and cumulants. The standard distributions : the binomial, the Poisson, the normal, the rectangular and the hypergeometric. Sheppard's corrections for moments.

(ii) *Sampling Theory*—Sample and population. The sampling distribution of Statistics Large sample theory. Standard errors. Small sample theory. Derivation and uses of x^2, F, Z and its distributions.

(iii) *Correlation and regression*—Linear regression. Fitting by the method of least squares. Solution of normal equations. Product moment correlation. Rank correlation. Spurious correlation. Derivation of bivariate normal distribution and extension, without proof, ton variables. Correlation ratio and non-linear regression. Partial and multiple correlation.

(iv) *Tests of significance*—Tests based on x^2, F, Z and t. Test of goodness of fit. Tests of independence in a contingency table. The problem of k samples for homogeneity.

(v) *Analysis of variance*—One way and two ways classifications of data. Analysis of variance tests for testing the significance of (1) correlation ratio, (2) linearity of regression, (3) multiple correlation co-efficient. Randomized blocks and latin square lay-outs. Introduction, to analysis of covariance.

(vi) *Estimation and testing of hypotheses* : Point estimates Consistency, efficiency and sufficiency. Method of minimum variance minimum x^2 and maximum likelihood. Confidence intervals and fiducial inference.

Simple and composite hypothesis. Likelihood criterion. Concept of power function.

(vii) *Elementary analysis of time series* : Secular trend. Method of moving averages. Serial correlation. The correlogram. Periodogram analysis.

(Emphasis should not be placed on the computational aspects of statistical methods).

Books for reference :

M. G. Kendall—Advanced Theory of Statistics, Vols. I and II.

Yule and Kendall—Introduction to the Theory of Statistics.

Tippett—Methods of Statistics.

Cramer—Mathematical Statistics.

Hoel—Introduction to statistical methods.

Kenny and Keeping—Mathematical Statistics.

Johnson and Tetley—Statistics.

Mood—Introduction to the Theory of Statistics.

Uspensky—Mathematical Theory of probability.

David—Probability Theory and Statistical Methods.

Branch II—Statistics

PART I

Statistics I

Algebra—Matrices and determinants, equations of the type Ax=O and Ax=y ; linear dependence ; symmetric and orthogonal matrices ; reciprocal and adjoint. Connonical reduction of the general matrix ; latent roots of a matrix ; characteristic functions. Quadratic forms, decomposition of quadratic forms.

Algebra of sets of points and set operations; closed and open sets. Completely additive class of sets. Elements of measure theory.

Theory of equations—relation between the roots and co-efficients, location of roots, Sturm's theorem.

Geometry—Analytical geometry of three dimensions; the spheres the cone and the quadrics, their important properties; extension to n-dimensions. vector and Vector spaces; angles between line, and between sub-spaces; orthogonality of lines and spaces.

Finite Differences—Symbolic operators; interpolation—divided difference formulae; numerical differentiation; quadrature—Lagrange's formula; Newton's and Cote's formula; Simpson's and Weddle's rules; Euler—MacLaurin formulae.

Numerical solution of equations, Horner's method—equation of 2nd, 3rd and 4th degrees; transcendental types, simultaneous linear equations—matrix methods.

Difference equations of 1st and 2nd degrees.

Statistics II

Analysis—Convergence of series and products; uniform convergence of series and conditions of continuity, differentiability and integrality. Functions of several variables—partial differentiation, properties of Jacobians; Taylor's theorm, maxima and minima.

Integration—Reimann and Stieltje's integrals, multiple integrals, line integrals, infinite integrals, convergence and uniform convergence; Fourier Series.

Complex Numbers. Argand diagram, De Moivre's theorem and its applications. Analytic functions of a complex variable, Cauchy's theorem (Green's proof), Taylor's and Laurent's series; contour integration.

Special functions—Gamma, Beta, Hypergeometric and Bessel functions; orthogonal functions; Hermite and Laguerre polynomials.

Probability—(The topics are in addition to the topics given in Paper I of B.Sc. Branch II—Statistics Course).

Mathematical expectation; Bernoulli's theorem, Tehebycheff's inequality, Law of large numbers; characteristic functions; inversion theorem; convergence theorems; central limit theorem and first limit theorem.

The axiomatic approach to probability and fundamental postulates. Inverse probability and Baye's theorem.

Probability distributions— binomial, normal, Poisson, rectangular, Cauchy's £ and β distributions.

Statistics III

Large Sample Theory—Standard errors and their uses in large sample tests; x^2 test of goodness of fit and independence; tests of significance of correlation coefficient r and rank correlation coefficient. Transformation of statistics.

Sampling distributions—univariate normal, x^2, t and F distributions, bivariate and multivariate; correlation and regression—total, partial and multiple; sampling distributions in multivariate normal.

Tests of significance—Tests based on the exact distributions of x^2, t, F and r.

Linear Estimation—Markoff's theorem on linear estimation. Analysis of variance and covariance. Linear and currilinear regression—fitting of regression lines.

Practical I

Exercises from topics covered in the theory papers on Finite Differences, Probability and Statistics III will be included in the Practical Examination. The use of calculators and printed tables will be permitted.

Record

A complete record of the practical work done during the year must be maintained in a laboratory note-book which should be submitted for valuation.

PART II

Statistics IV

Estimation—Properties of estimates; methods of estimation maximum likelihood, moments, minimum x^2 and least squares; unbias sed minimum variance estimates. Sufficient Statistics.

Interval estimation, Neyman's approach, uses of ordered statistics; Fisher's concept of fiducial probability and fiducial intervals.

Tests of Hypotheses—Neyman—Pearson's theory; the fundamental lemma. Locally and uniformly best tests; best unbiassed tests. Com-

posite hypotheses—existence of similar regions. Tests of linear hypotheses; likelihood ratio tests. Location and scale parameters; Bartlett's test.

Sequential Theory—Sequential probability ratio tests ; sequential methods of testing simple hypotheses.

Simple non-parametric tests.

Statistics V

Multivariate Analysis—Multivariate normal distribution ; Wishart's distribution, use of Hotelling's T and Mahalanobis' D^2. Discriminant functions.

Design and Analysis of Experiments—Principles of experimentation, randomised block and Latin squares ; local control—two way and three way classification of data ; analysis of data in factorial experiments ; principles of confounding ; split plot, balanced and partially balanced incomplete block design.

Time Series—Analysis of economic time series, correlogram analysis; demand analysis and family budget studies.

Sample Surveys—Principles of designing sample surveys—stratified, multiphase and multistage samplings ; sample frame, selection of sample, estimates, sampling errors of estimation. Official statistics —sources of data, official publications.

Statistics VI

One of the following optional subjects :

1. Theory of Experimental Design.
2. Sample Surveys.
3. Econometrics and Economic Planning.
4. Industrial Statistics (including Statistical Quality Control).
5. Demography and Population Studies.

1. *Theory of Experimental Design :*

Mathematical preliminaries, elements of finite geometry, Galolisian fields.

Construction of Lattice designs, Youden squares, recovery of interblock information, construction of complete sets of Orthogonal Latin squares, balanced and partially balanced incomplete block designs.

Construction of confounded and partially confounded symmetric factorial designs. Fractional replication.

Long-term experiments. Analysis of a group of experiments. Use of concomitant variables, analysis of covariance. Uniformity trial and lay-out designs. Missing plot technique. Weighing designs.

2. *Sample Surveys :*

Advanced treatment of stratified, systematic multistage and multiphase sampling designs.

Ratio and regression estimation. Cluster sampling, quota sampling, double sampling. The use of pilot surveys ; design of successive surveys.

Allocation of primary units using cost and variance functions, optimum replacement policy.

Non-sampling errors. Interpenetrating sub-samples. The problem of non-response.

Important surveys conducted with special reference to those conducted in India, National Sample Survey.

Preparation of schedules, code lists and instruction to field staff, scrutiny of schedules, use of sampling methods in tabulation. Preparation of reports.

3. *Econometrics and Economic Planning :*

Measurement in Economics; probability approach.

Economic models—static and dynamic ; structural estimation. Identifiability and identification. Demand analysis ; production functions. Studies using time series and cross section data ; input-output analysis. Minimax principle.

Estimation of parameters of structural relations—contrast with regressional estimation. Application of discriminant analysis and principal component analysis in economic problems.

Analysis of times series.

Principles of economic planning ; importance of planning, problems of planning—fixation of targets, allocation of resources. Planning methods. Models of economic growth. First and Second Five-Year Plans.

4. *Industrial Statistics (including quality control)* :

Important industrial statistics with special reference to India—census of Manufactures.

Importance of statistical methods in industrial research; time and motion studies.

Specification and inspection of industrial characteristics; measurement of quality, control charts, construction and applications. Principles of acceptance sampling; inspection by attributes and variables. Cost of inspection and optimum plans. Sequential experiments.

Regression analysis and analysis of variance and covariance as applied to industrial data. Industrial experimentation analysis of simple and factorial experiments.

Planning and conducting investigations in industry.

5. *Demography and populations tudies* :

Various rates and ratios, their uses and methods of construction, measurement of fertility and mortality; stationary and stable populations. Construction of life tables from vital and census returns.

Growth curves; geometric, logsitic, etc.; population dynamics; population projections.

Methods of demographic analysis including survey techniques.

Census and vital statistics with special reference to India.

Practical II & III—Exercises chosen mainly from topics listed in all the three theory papers for Part II of the examinations will be included in the practical tests. Use of calculators and all printed tables will be permitted.

Record of Practical and Field Work

A complete record of the practical exercises done during the second year must be maintained in a laboratory note-book.

Field work and practical experience in the collection and analysis of data will form a part of the course. This can be in the nature of taking part in a statistical project or survey and practical training at any suitable organisation that has been actually undertaking applied statistical work.

Viva Voce

The oral examination will be designed to test the general attainment in Statistics and can cover all topics included for the two parts of the course. Performance at the oral examination, the entire practical record of work, the field work and practical experience will be taken into consideration together for marking.

Books for Study and Reference :

Aitken, A. C. : Determinants and matrices.
Ferrar, W. L. : Algebra.
Levi, F. W. : Algebra.
Wade, T. L. : Algebra of Vectors and Matrices.
Gibson, G. E. : Advanced Calculus.
Hardy, G. H. : Pure Mathematics.
Whittaker & Watson : Modern Analysis.
Sommerville : Introduction to n-dimensional geometry.
Bell : Three Dimensional geometry.
Jackson : Fourier Series and orthogonal polynomials.
Freeman, H. : Actuarial Mathematics, Vol. II.
Steffenson, J. F. : Interpolation.
Scarborough, J. B. : Numerical Mathematical analysis.
Milne, W. E. : Numerical Calculus.
Milne—Thompson, L. M. : The calculus of finite differences.
Whittaker, E. T. & Robinson, G. : Calculus of observations.
Gramer, H. : Probability and its applications.
Daid, F. N. : Probability theory for statistical methods.
Uspensky,, J. V. : Introduction to mathematical probability.
Feller : Theory of Probability, Vol. I.
Hoel, P. G. : Introduction to Mathematical Statistics.
Weatherburn, C. E. : First course in mathematical statistics.
Kenny & Kuping : Mathematics of Statistics.
Kendall, M. G. : Advanced theory of Statistics, Vols. I & II.
Cramer, H. : Mathematical methods of statistics.
Wilks, S. S. : Mathematical Statistics.
Fisher, R. A. : Statistical methods for research workers.
Fisher, R. A. : Design of Experiments.
Fisher, R. A. : Contributions to Mathematical Statistics.

Goulden, C. H. : Statistical methods.

Snedecor, G. : Statistical methods.

Mood, A. M. : Introduction to the theory of Statistics.

Wald, A. : Sequential Analysis.

Rao, C. R. : Advanced Statistical methods in Biometric Research.

Neyman, J. (Ed.) : Proceedings of the Berkley Symposium on Mathematical Statistics.

do : Statistical Research Memoirs, Vols. I & II

Davies : Analysis of economic time series.

Tintner : Econometrics.

Wold, H. : Demand Analysis.

Sukhatme, P. V. : Sampling Theory of Survey with applications.

Yates, F. : Sampling methods for Censuses and Surveys.

Yates, F.	...	Analysis of factorial experiments.
Snedecor, G.W.	...	Analysis of variance and covariance.
Patterson, D. D	...	Statistical techniques in agricultural research.
Kempthorne, O.	...	Design and analysis of experiments.
Cochran, W. G & Cox, G. M.	...	Experimental Designs.
Denning, W. E.	...	Some theory of sampling.
Cochran, W. G.	...	Sampling techniques.
Hansen, M. H., Hurwitz, W. N. & Madow, W. G		Sample Survey Methods and Theory, Vols. I and II.
Klein, L.	...	Econometrics.
Tingerben, J.	...	Econometrics.
Stone, R.	...	Role ot measurement in Economics.
Haavelmo, T.	..	Probability approach to Econometrics Supplement Econometrics, Vol. 12.
Koopman, T.C. (Ed.).	...	Studies in econometric research (Cowles Commission Monographs, 13 and 14).
Grant, E. L.	...	Statistical quality control.
Tippet, L. H. C.	...	Technological application of Statistics.
Columbia University Statistical Research Group.		Selected Techniques of statistical analysis.
Davies, O.L.	...	Statistical methods in research and production.

Rice, W. B.	...	Control charts in factory management.
Hald, A.	...	Statistical theory with engineering applications.
Orr, J. Boyd.	...	Population and food resources.
Kuczynski, R. R.	...	Measurement of population growth.
Pearl, R.	...	Medical biometry and statistics.
Cox, P. R.	..	Demography.
Spurgeon, E. F.	.	Life Contingencies.

Important articles in current periodicals should also be consulted.

Branch III—Physics

Physics

1. *Methods of Mathematical Physics* :

1. *Three Dimensional Geometry* :—Vectors, co-ordinate systems—Cartesian, spherical polar and cylindrical polar co-ordinates ; expressions for gradient, divergence, curl and Laplacian in these systems ; curvature of surfaces, Angles between lines and planes, Elementary properties of spheres and quadrics.

2. *Functions of a complex variable* :—Complex numbers—representation—Elementary functions—Conformal representation—Applications to hydrodynamics and electrostatics. Complex integration—Cauchy's theorem—Applications.

3. *Differential equations* :—Ordinary differential equations of first order ; partial differential equations of heat conduction and wave propagation, operational and numerical method of solution of differential equations ; descriptive account of principal functions used in theoretical physics (including gamma, Legendre, Bessel functions.)

4. *Series* :—Taylor's Series ; convergence ; power series ; Fourier series and their applications to periodic phenomena ; solution of problems in sound.

5. *Tensors* :—Cartesian tensors ; definition and aw of transformation ; first and second order tensors ; examples from physics ; stress strain, conductivity, dielectric constants ; ellipsoid representing second order tensor ; definition of higher order tensors ; products of tensors and vectors resulting in reduction or increase of order.

6. *Matrices* :—Elementary ideas : matrix multiplication ; determinant of a matrix ; transformation of a matrix ; characteristic of a matrix and its invariance under transformation.

7. *Probability* :—Permutations and combinations with applications to simple problems in probability; theory of errors; properties of Gaussian distribution.

2. *Properties of matter and acoustics* :

Theoretical Mechanics :—(*a*) *Elementary* :—Laws of motion—Energy and Momentum principles for a single particle and systems of particles—Motion of particle under constant force—Simple harmonic motion and resonance. Motion of particle under variable force—Central field motion—Accelerated reference systems—Motion of a body under constraints—Rotation of a rigid body in 3 dimensions—Vibrating systems and normal co-ordinates.

(*b*) *Advanced* :—Lagrangian and Hamiltonian formulations of dynamics—contact transformations—Hamilton Jacobi differential equation—Action and angle variables—Theory of small vibrations and normal co-ordinates.

Elasticity and Hydrodynamics :—Kinematics of Deformable Bodies—Stress and strain tensors—elastic constants—Application to static deformation and vibration of beams—Dynamics of incompressible fluids—Euler's equations—Application to fluid flow problems—Wave propagation in fluids—Vortex motion—Helmholtz's theorems—Viscocity—Equations of motion of Viscous fluid—Theories of Viscocity.

Colloids :—Sols and gels, molecular weight determination of colloids by osmosis and diffusion, ultracentrifuge.

Acoustics :—Vibrating systems—Normal Modes—Vibrating string—String with variable tension and density—Vibrating bars and Membranes—Plane and spherical waves in air-sound transmission in media—Sound transmitters and receivers—Acoustic filters—Acoustic Measurements—Intensity and absorption—Technical applications—Ultrasonics—Methods of production and detection—Theories of propagation—Applications.

3. *Heat and Thermodynamics* :

(*a*) *Elementary* :—Temperature measurement—1st and 2nd laws of thermodynamics—Specific heats—Change of phase—Vapour pressure formula—Conduction of heat—Radiation—Planck's Law—Stefan's law.

(*b*) Thermodynamic functions and potentials and their relations—Applications to pure systems and phase changes—Chemical thermodynamics—Ideal gas reactions—Heterogeneous systems and Gibbs Phase Rule.

(*c*) *Statistical Mechanics and Thermodynamics* :—Phase space and general motion of particles—Boltzmann statistics—Partition functions—Quantum theory of specific heat of gases and solids—Quantum statistics—Bose Einstein Statistics and application to photon gas F.D. Statistics and application to metals—Reaction rates and law of mass action—thermal ionisation theory.

(*d*) *Kinetic theory*:—Maxwell's distribution law—Application to Viscocity, diffusion and heat conduction—Brownian motion—Properties of rarefied gases—Production and measurement of high vacua.

(*e*) *Low Temperature Physics* :—Production and measurement of low temperatures—Properties of liquid helium—Superfluidity—Second Sound—Adiabatic demagnetisation—Superconductivity—Magnetic properties of superconductors—Third law of thermodynamics—Application to specific heats and to chemistry.

4. *Optics and Spectroscopy* :

(*a*) Ideal optical systems—Images—Applications of the paraxial theory—Principal foci and principal planes—Magnification—Defects of optical image and correction—Application to object glasses and eye pieces—Microscopes, photometers—Optical instruments—telescopes.

(*b*) Wave propagation—Interference—Formation of fringes—Interferometers—Refractometers—Applications.

Diffraction :—General diffraction problem—Kirchhoff's formulation—Fresnel and Fraunhobber phenomena—Diffraction grating and applications—Resolving power.

Polarisation :—Production and analysis of linearly, circularly and elliptically polarised light—Polarisation microscope—Crystal optics—Solution of field equations for anisotropic media—Fresnel ellipsoid—Wave surface—Uniaxial and biaxial crystals—Conical Refraction.

(*c*) *Dispersion* :—Atomistic theory—Kramer—Heisenberg formula—Polarisability—Optical anisotropy—Molar refraction—Lorentz—Lorenz formula—Variation of refraction with temperature and pressure—Optical properties of metals.

(*d*) *Optical activity* :—Derivation of EM equations—Faraday Kerr, Voigt and Cotton—Mouton effects.

Spectroscopy :—General principles—determination of wave-lengths—Spectrographs Infrared and U.V. spectra—Methods of producing—Absorption and emission spectra—Spectro-chemical Analysis.

Scattering of Light :—Tyndall scattering—Rayleigh scattering colloid optics—Intensity and Polarisation in relation to size, shape and anisotropy—Determination of molecular weight by light scattering—Application to high polymers and proteins.

5. *Electricity, Magnetism and Electronics :*

Electromagnetic theory and electronics :—(a) Electrostatics — Coulomb's law—Advanced methods of solution of electrostatic problems—Ampere's law—Vector potentials and magnetic fields.

(b) Faraday's law of induction—Quasi-static phenomena—Displacement current and Maxwell's equations—Energy Relations—Poynting Vector and E.M. Stress tensor—plane E.M. waves—scalar and vector potentials—Fields and radiations from specified charge and current distribution .

(c) Plane wave in material media—dispersion—Kramers Kronig relationship and Fermat's principle—Boundary value problems and reflection and refraction—Cylindrical waves and wave guides and cavity resonators.

Magnetism :—Electric and Magnetic susceptibilities—para—and dia magnetism. Molecular theory—Ferromagnetism—Curie—Weiss theory, Heisenberg theory and modern theory—Dipole moments—measurements and applications—Magnetic circuits—Design of Magnets.

Electronics :—(a) Physics of vacuum tubes, rectifiers, cathode ray tubes—Elementary theory and applications of vacuum tubes as linear circuit elements—Amplifiers—Feedback Principle—applications—Oscillators—Modulation and distortion.

(b) Electronic Instruments and Techniques as used in physics. Vacuum tubes as non-linear circuit elements—Multivibrators, blocking oscillators, pulse generators—synchronising and time measuring circuits.

(c) Microwave physics—Generation and detection—study of propagation—elements of microwave spectroscopy and its applications.

(d) *Transitor physics* :—Motion of electrons in a periodic potential, energy bands and Brillouin Zones in a crystal—conductors and semiconductors—theory of conduction—Electrons and holes in electric and magnetic fields—Hall effect-static characteristics of transistors and equivalent circuits—Applications.

6. *Modern Physics* I :

Electron Physics :—Fundamental properties of electron, charge, mass, spin—wave nature of the electron—electron scattering and diffraction. Production and detection of X-rays—X-ray spectra—scattering of X-rays and Compton effect.

Electron emission from solids—Thermionic emission photoelectric effect—Secondary electron emission—Photomultipliers.

Atomic and Molecular Physics :—Analysis of spectra—series and terms relationships—Bohr-Rutherford Model of the Atom—Ionisation and resonance potentials—The Vector Model—Zeeman and Stark effects—hyperfine structure—Pauli principle—Periodic Table—Structure of diatomic molecules—Band spectra— Frank - Condon principle—Pre-dissociation—Determination of heats of dissociations—Isotope effects—Infrared and Raman spectra and application to molecular structure—Types of chemical binding and valences.

Solid State Physics:—X-ray diffraction and crystal structure analysis—elements of crystallography—space lattice and space groups—diffraction of neutrons—Classification of solid and crystal structures—homopolar crystals, ionic crystals, metals and alloys—Lattice energy of ionic crystals—Lattice vibrations—Thermal, dielectric and magnetic properties of solids.

7. *Modern Physics II* :

Relativity :—(a) Experimental evidence for symmetry of physical laws w.r.t. time and space—Geometrical representation—Lorentz transformation and applications—Relativistic mechanics—Relativistic Electrodynamics Theory of gravitation, general ideas.

Quantum Mechanics :—Breakdown of classical theories—De Broglie waves—wave function and its interpretation—Uncertainty principle—Schrodinger equation—Eigenvalues and eigenfunctions for (a) Square well, (b) Harmonic oscillator, (c) Rigid rotator and (d) Hydrogen atom.

Time independent perturbation methods—standard methods—Matrix elements—Perturbation theory for degenerate states—Helium

atom—Heitler—London method, H_2 molecule and covalent bond—Resonance and valency.

Effect of magnetic field and spin—Pauli's non-relativistic equation including spin.

Time dependent perturbation theory—particular cases (i) perturbations varying slowly with time (ii) perturbations periodic in time (iii) perturbation independent of time—Transitions in which energy is conserved—density of states—Wave functions of many particle systems—quantum statistics.

Interaction of radiation with matter—absorption and emission of radiation—matrix elements and transition probabilities—selection rules—scattering of light—Raman effect—Kramers—Heisenberg formula.

Relation between transition probabilities per unit time and cross Sections of collision processes—theory of scattering—Born approximation.

Matrix formulation of quantum mechanics—commutation rules—Matrix representation of angular momentum—spin matrices —Relativistic wave equations—Klein Gordon equation—the Dirac equation—solutions of the Dirac equation for a free particle—spin in Dirac theory—Negative energy states—Hole theory and the positron.

Nuclear Physics :—

1. General properties of nuclei—Systematics of stable nuclei—Two body problem at low energies—Nuclear forces—physical principles of the meson theory—the Yukawa potential.

Alpha-activity-β-decay—emission of γ radiation and selection rules—Nuclear shell model.

2. Phenomena associated with passage of nuclear radiations and particles through matter—Methods of detection of particles and quanta—High energy accelerators.

3. Nuclear reactions and artificial radioactivity—compound nucleus model—Neutrons and nuclear fission—thermo-nuclear reactions—elementary particles.

4. Cosmic rays—Influence of magnetic field of earth on incoming radiation—Electro-magnetic and nuclear interactions in cosmic rays—Cascades and large air showers—Mesons and new particles in cosmic radiation—their physical properties (spin, moment, etc.)

8. *Experimental Research Techniques* :—This course is intended to bridge the gap between the under-graduate laboratory work and actual research in experimental physics.

Workshop :—(a) Glass blowing, (b) Machine shop, (c) Soldering and brazing.

9. *Experiments* :—In addition to one hundred experiments on the various branches of physics, each student must perform at least ten of the following advanced experiments during the course :

1. Magnetic Permeability.
2. Properties of A.C. Circuits.
3. R. F. Bridges.
4. Cathode Ray Oscillograph.
5. Michaelson Interferometer.
6. Rayleigh refractometer.
7. Pufrich refractometer.
8. Amplifier characteristics.
9. Multivibrator and its characteristics.
10. Lecher wires.
11. Lummer Gehrcke or Fabry Perot interferometer.
12. Optical Pyrometer.
13. Spectroscopic identification of elements.
14. Scattering of light.
15. Raman spectrum.
16. Measurement of e or (e/m).
17. Measurement of critical potentials.
18. Measurement of very small currents by electrometer.
19. Interference of microwaves.
20. G.M. counter.
21. Ultrasonic diffraction.
22. Laue photograph and indexing.
23. Study of particle tracks in nuclear emulsions.

Text-books and books for reference (M.Sc. Physics.)

1. *Methods of Mathematical Physics :*

Books of study :—Margenau and Murphy—Mathematics for Students of Physics and Chemistry.

Murnaghan—Applied Mathematics.

Relevant chapters from the following Oliver and Boyd Publications:

1. Aitken—Determinants and Matrices.
2. Gillespie—Partial Differentiation.
3. Philips—Functions of a complex variable.
4. Ince—Solution of ordinary differential equations.
5. Mcrea—Analytical Geometry of three dimensions.
6. Rutherford—Vector Methods.
7. Coulson—Waves.
8. B. Spain—Tensor Calculus.
9. Lederman—Theory of Groups.
10. Sneddon—Special Functions of Mathematics and Chemistry

2. *Properties of Matter and Acoustics* :

Books of study :—

1. D. E. Rutherford—Classical Mechanics (Oliver and Boyd)
2. Sommerfeld—Mechanics.
3. Sommerfeld—Mechanics of Deformable Bodies.
4. Joos—Theoretical Physics.
5. Slater and Frank—Introduction to Theoretical Physics
6. Morse—Vibrations and Sound.

Reference :—

1. Whittaker—Analytical Dynamics.
2. Corben and Stehle—Classical Mechanics.
3. Lamb—Hydrodnamics.
4. Sokolniknoff—Mathematical Theory of Elasticity.
5. Beranek—Acoustics.
6. Bergmann—Ultrasonics.

3. *Heat and Thermodynamics*:

Books of Study:

1. Zemansky—Heat and Thermodynamics.
2. Roberts—Heat and Thermodynamics.
3. Saha and Srivastava —Text-book of Heat.
4. Slater—Introduction to Chemical Physics.

Reference :—

1. Rutgers—Physical Chemistry.
2. Fowler and Guggenheim—Statistical Thermodynamics
3. Rushbrooke—Statistical Mechanics.
4. Squire—Low Temperature Physics.
5. Jackson—Low Temperature Physics.

4. *Electricity, Magnetism and Electronics* :

Books of study :—

1. Slater and Frank—Electromagnetism
2. Sommerfeld—Electrodynamics.
3. Terman—Radio Engineering
4. Pollard and Sturtevant—Microwaves and Radar Electronics
5. Farley—Elements of Pulse Circuits (Methuen)
6. Starling—Electricity and Magnetism

Reference :—

1. St atton—Electromagnetic theory.
2. Schelkunoff—Electromagnetic waves
3. M. I. T. Staff—Electronics.
4. Elmore and Sands—Electronics.
5. Bates—Modern Magnetism.
6. Wright—Semiconductors (Methuen)

5. *Optics and Spectroscopy* :

Books of study :—

1. Jenkins and White—Physical Optics
2. Sommerfeld—Optics.
3. Harrison—Practical Spectroscopy.

Reference :—

1. Bhagavantam—Scattering of light and Raman Effect.
2. Ditchburn—Optics.
3. Sawyer—Practical Spectroscopy.
4. G. Oster—Article in "Physical Methods of Biological Research."

6. *Modern Physics* :

Books of study :—

1. Max Born—Atomic Physics.
2. Pauling and Wilson—Quantum Mechanics.
3. Slater—Quantum Theory of Matter.
4. Mcrea—Relativity Physics (Methuen).
5. Kittel—Introduction to Solid State Physics.
6. Fermi—Nuclear Physics.
7. Richtmeyer. Kennard and Lawritsen—Introduction. Modern Physics.

Reference :—

1. Schiff—Quantum Mechanics.
2. Sommerfeld—Wave Mechanics.
3. Mott and Sneddon—Application of Wave mechanics.
4. March—Quantum Mechanics of Paticles and Wave fields.
5. Moller—Theory of Relativity.
6. Evans—The Atomic Nucleus.
7. Segre—Experimental Nuclear Physics, Vols. I and II.
8. Hoag and Korff—Electron and Nuclear Physics.
9. Janossy—Cosmic Rays.

7. *Experimental Research Techniques*:

Strong—Modern Physical Laboratory Practice (Blackie)

Experiments :

Worsnop and Flint, Practical Physics

Branch IV—Chemistry

I. *Inorganic Chemistry* :

A. First year :—

1. The classification of the elements. Periodicity of the physical and chemical properties of the elements.

2. Radioactive series. Isotopes.

3. X-ray spectroscopy of the elements. Atomic number, atomic weight, and their determination.

4. Valency and chemical affinity. The electronegativity of elements.

5. The constitution of inorganic compounds.

6. The colour of inorganic compounds.

7. X-rays and crystal structure : structure of the alkali halides, sodium nitrate, calcium carbonate, double salts, gas hydrates.

8. Co-ordination compounds. Intermetallic compounds. Stereochemistry of Werner complexes.

B. Second year :—

1. Descriptive inorganic chemistry. A general and comparative study of the following elements and their compounds from the stand point of the periodic classification :

H		
He, Ne, Ar, Kr, Xe, Rn,		
Li, Na, K, Rb, Cs, Fr,	Cu, Ag, Au,	
Be, Mg, Ca, St, Ba, Ra,	Zn, Cd, Hg,	
B, Al, Ga, In, Tl,	Zr, Hf, Ti, Th,	Fe, Co, Ni,
Si, Ge, Sn, Pb,	V, Cb, Ta,	Ru, Rd, Pd,
N, P, As, Sb, Bi,	Cr, Mo, W, U,	Os, Ir, Pt,
O, S, Se, Te,	Mn, Tb, Re,	

Rare earth elements, Transuranium elements.

2. Allotropy.

3. Oxyacids of the elements of the fifth, sixth and seventh group elements. Per acids and per salts. Isopoly acids and heteropoly acids.

4. Carbides, nitrides, carbonyl and nitrosyl compounds.

5. Silicates.

6. Industrial gases.

7. Metallurgy of: Beryllium, cerium, vanadium, uranium, tungsten, titanium, zirconium, thorium and palladium.

8. Inorganic fertilisers.

9. Steel, ferrous alloys: binary ferrous alloys.

II. Physical Chemistry :

A. First year :—

1. The equation of state of ideal gases. Avogadro's number and its determination. Deviations from ideal behaviour. Kinetic theory of gases. Principle of equipartition of energy. Mean molecular

velocity, mean free path and dimensions of molecules. Maxwell Boltzmann distribution. Vander-Waal's equation of state. Liqufaction of gases, production and measurement of low temperatures and pressures.

2. The liquid state. Energy relations at surfaces. Measurement of surface tension. Parachor. Vapour pressure of liquids Kinetic theory of liquids. Structure of liquids. Liquid crystals.

3. The solid sate. Elements of crystallography. Space lattices and space groups. Diffraction of X-rays and of neutrons. Crystal chemistry. Homopolar crystals, ionic crystals. Silicates. Metals and alloys.

4. The Photoelectic effect. Laws of radiation. Specific heat of gases. Wave and particle aspects of radiation, electrons and atoms-Principle of indeterminacy. Atomic spectra-atoms and ions with one electron. Quantum numbers. Pauli exclusion principle. Spectroscopy and the periodic table. Electronic theory of valency. Valence bond and molecular orbital methods in the study of structure of molecules. Optical anisotropy. Molar refraction. Polarization. Dipole moments.

5. The first law of thermodynamics. Conservation of energy internal energy, heat of reaction, Thermochemistry. Hess's law. Born-Haber cycle. Kirchoff's equation. Second law of thermodynamics. Reversible and irreversible processes. Entropy. Free energy, conditions of equilibrium, chemical affinity. Entropy changes and free energy changes. Clausius-Clapeyron equation. Raoult's law and Henry's law. Dilute solutions. Chemical potentials. The concept of fugacity and activity. Law of mass action. Van't Hoff isotherm and isochore. Free energy and entropy changes in solution. Heterogeneous chemical equilibria. Phase rule and one, two and simple three component systems.

6. Homogeneous reactions in the gas phase and in solution. First and second order reactions. Bimolecular and termolecular reactions. Collision theory. Calculation of activation energy.

B. Second year :—

1. The third law of thermodynamics. Statistical basis of thermodynamics.

2. Theory of absolute reaction rates. Acid-base catalysis. Chain reactions. Negative catalysis. Antioxidants. Thermal decomposi-

tion. Free radicals, polymerisation. Heterogeneous catalysis. Photochemistry reactions involving the halogens, photolysis of ammonia, of oxides of nitrogen, and of carbonyl compounds. Isomerisation, Photosensitisation Chemiluminesence.

3. Interionic attraction theory of strong electrolytes. Activity and activity coefficients and their determination. E.M.F. of cells with and without transport. Liquid junction potentials. Theory of indicators. Modern concept of acid and base. Decomposition potentials, polarisation and over-voltage. Polarography. Electrochemical theory of corrosion and passivity.

4. Lyophobic and lyophilic colloids. Colloidal electrolytes. Gels, thixotropy, dilatancy. Membrane equilibria. Molecular weights of proteins. Ultra microscope, ultracentrifuge and electron microscope.

5. Adsorption and adsorption isoterms. Films of insoluble substances and their applications. Adsorption of gases by solids. Reaction at solid surfaces. Electrokinetic phenomena. Chromatography and its applications.

6. Rotation spectra. Rotation-vibration spectra. Potential energy curves. Franck-Condon principle. Determination of heats of dissociation. Isotope effects. Predissociation. Raman spectra, Fluorescene. Infra-red spectra. Molecular spectra and molecular structure.

7. Radioactive transformations, natural and induced. Disintegration by accelerated particles : cyclotron, synchrocyclotron and linear accelerators. Positron, nuetron. Mass energy relationships. Isotopic weights from energy of nuclear reactions. Nuclear fission. Trans uranium elements. Constitution of atomic nuclei. Isotopic indicators and use of labelled tracer elements.

III. Organic Chemistry :

A. First year :—

1. Wave mechanical theory of valency as applied to simple organic molecules. Polar effects in carbon bonds. Inductive effect. inductometric effect, electromeric effect, mesomeric effect (resonance) Hyperconjugation. Atomic distances and valency angles.

2. Optical isomerism : Principles of molecular symmetry. Optical isomerism of compounds containing asymmetric carbon atoms and of compounds containing no individual assymmetric atom. Optical

isomerism of nitrogen and sulphur. Racemisation, resolution, Walden inversion. Asymmetric synthesis and transformation. Geometrical, isomerism : compounds containing carbon-carbon, carbon-nitrogen and nitrogen-nitrogen double bonds. Cyclic compounds-determination of configuration.

3. Theories of aromatic character and orientation in substitution Electrophilic, nucleophilic and homolytic aromatic substitution. Non benzenoid aromatic compounds.

4. Ionisation of organic acids and bases in aqueous solution. Effect of structure on dissociation constants. Dissociation of molecular addition compounds.

5. Chemical behaviour of unsaturated compounds. Reactions of conjugated systems.

6 Molecular compounds, complex compounds, oxonium compounds

7. Furan, pyrrole, thiophene, indole, carbazole, acridine pyrazole, imidazole, oxazole, thiazoles, pyrones, coumarins, chromones, flavonoids, xanthones, anthocyanins, pyrimidines and purines.

8. Mono-and Di-saccharides: structure and configuration. Polysaccharides : starch and cellulose.

9. Narcotine, hydrastinine, papaverine, glaucine, atropine, cocaine, quinine.

10. Antibiotics : Penicillin, streptomycin, chloromycetin.

B. Second year :—

1. Reaction mechanism : Nucleophilic and electrophilic reagents. Substitution and elemination. S_{N_1} and S_{N_2} reactions. Structural and solvent effects on rates of substitution. Addition to olefinic compounds (halogens and halogen acids). Addition to carbonyl compounds. (Aldol, Perkin, Knoevenagel, Claisen, Benzoin, Cannizzaro etc.).

2. Stereochemistry of nucleophilic substitution, elimination, esterification, hydrolysis and addition reactions.

3. Molecular rearrangements. Tautomerism.

4. Free radicals and free radical reactions.

5. Strain theory and conformational analysis.

6. Physical methods and determination of structure : Absorption spectra. Raman spectra, Dipole monent, x-ray diffraction and electron diffraction.

7. Thujene, carene, pinene, camphene, fenchene, camphors farnesol, bisabolene, zingiberene, cadinene.

8. Steriods : Chelesterol, cholic acid, equilenin, oestrone, oestriol, progesterone and androsterone.

9. Vitamins : Vitamin A, Vitamins of the B complex (aneurin (B_1), riboflavin (B_2), nicotinic acid, pyridoxine, pantothenic acid, folic acid, choline, inostiol, p-amino-benzoic acid). Ascorbic acid, Vitamin D, Vitamin E and Vitamin K.

10. Proteins : classification, properties and structure.

Practical.

I. First year :

(*a*) *Inorganic* :—

1. Identification of the following elements by spot tests and semimicro techniques : Li, Rb, Be, Ga, Tl, Ge, Se, Te, Zr, Th, Ti, V, W, U, Ir, Pt and Rh.

2. Quantitative colorimetric estimations.

3. Inorganic preparations : About 15 compounds from among the following : Cuprous thiourea complexes, Double salts involving cupric compounds. Ortho and p-hydroxyphenyl mercuric chloride. Potassium trioxalate aluminate. Cerous exalate. Stannic chloride. Lead tetraacetate. Dipyridinium hexachloroplumbate. Hydroxylamine hydrochloride. Hydrazine sulphate. Hypophosphoric acid. Potassium dithionate. Trithionate and tetrathionate. Cis-and trans-dioxaloto diaquo chromate. Chloro aquao tetrammino chromic chloride. Electrolytic preparation of potassiumchlorate.

4. Gas analysis.

(*b*) *Physical* :—

1. Molecular weight determinations.

2. Heats of reactions in solution and heats of combustion using simpleadiabatic calorimeters by bomb calorimeter.

3. Setting up of a thermostat and study of kinetics of simple reactions at different temperatures. A study of acid-base catalysis and of neutral salt action.

4. Adsorption isotherms. Solutions.

5. Determination of equilibrium constants of systems such as

(*a*) $Cu+4NH \rightarrow Cu\ (NH_4)$

$_3\leftarrow$

(*b*) $KI+I_2 \rightleftarrows KI_3$.

6. Measurements of interfacial energy. Parachor.

7. Phase rule studies of simple binary systems.

(*c*) *Organic* :—

1. Separation and characterisations of mixtures containing three components.

2. Fifteen preparations involving two or three stages.

II. Second year :

(*a*) *Inorganic* :—

1. Qualitative and quantitative analysis of : (*a*) a carbonate ore, (*b*) a sulphide ore, (*c*) a felspar, (*d*) a rare earth mineral, (*e*) a glass, (*f*) steels—carbon steels, stainless steels, other alloy steels, (*g*) brasses and bronzes, (*h*) alloys of magnesium and aluminium, (*i*) Type metals.

2. Transformations in the pentammine, tetrammine and triammine series of cobalt complexes.

(*b*) *Physical* :—

1. Measurements of conductivity, verification of Ostwald's dilution law, relative strengths of acids, solubility of sparingly soluble compounds.

2. Measurements of electromotive force: cells with transport, cells without transport, ion activity, solubility of a sparingly soluble compound. Measurement of pH valces of solutions by different methods.

3. Measurement of transport number, decomposition potentials and oxidation-reduction potentials.

4. Electrometric titrations.

5. Use of the dropping mercury electrode.

6. Electro analysis of Ag, Cu, Ni.

7. Arc, spark, flame and absorption spectra.

8. Measurement of dipole moments.

(*c*) *Organic* :—

1. Estimations : Iodine value, saponification value, acetyl value, glucose, hydroxy, methoxy, carbonyl, carboxyl, amino nitro.

2. Colorimetric estimation of cholesterol, ascorbic acid, nicotinic acid and thyroxine. Determination of active hydrogen.

3. Catalytic hydrogenation. Reduction in liquid ammonia, Electrolytic preparations. Column and paper chromatography.

BIBLIOGRAPHY

1. Adam: Physical Chemistry (Clarendon).
2. Adams: Organic Reactions : 1942 (Wiley).
3. Adams: Organic synthesis : 1921 (Wiley).
4. Alexander: Principles of Ionic Organic Reactions (Wiley).
5. Alexander and Johnson: Colloid Science (2 Vols.) (Oxford.)
6. Van Arkel,:Moleculus and Crystals (Butterworths).
7. Annual Reports of the Chemical Society, 1904.
8. Annual Review of Biochemistry, 1932.
9. Annual Review of Physical Chemistry, 1950.
10. Baker: Hyperconjugation (Oxford).
11. Bell: Acid-Base Catalysis (Oxford).
12. Bergmann: Isomerism and Isomerisation of Organic Compounds (Inter-Science).
13. Berry: Modern Chemistry—Some sketches of its Historical Development (Cambridge).
14. Bitter: Nuclear Physics (Cambridge-Mass).
15. Bottcher: Theory of Electric Polarization (Elsevier).
16. Brode and Nachod: Determination of Organic Structures by Physical Methods (Academic Press).
17. Brewster: Organic Chemistry (Prentice-Hall).
18. Brooks: The Chemistry of Non-Benzenoid Hydrocarbons (Chemical Catalogue).

19. Bunn: Chemical Crystallography (Oxford).
20. Burk and Grummitt: The Chemistry of Large Molecules (Interscience).
21. Cartmell and Fowles: Valency and Molecular Structure (Butterworth).
22. Chemical Reviews.
23. Cook: Progress in Organic Chemistry, 1952 (Butterworth).
24. Cook and Duncan: Modern Radiochemical Practice (Oxford)
25. Cottrell: The Strengths of Chemical Bonds (Academic Press).
26. Coulson: Valence (Oxford).
27. Dainton: Chain Reactions—An Introduction (Wiley).
28. Dewar: Electronic Theory of Organic Chemistry (Oxford).
29. Discussions of the Faraday Society.
30. Dodds and Robinson: Experimental Inorganic Chemistry (Elsevier).
31. Dyson: Manual of Organic Chemistry for Advanced students (Longmans).
32. Emeleus and Anderson: Modern Aspects of Inorganic Chemistry (Routledge and Kegan Paul).
33. Ephraim: Inorganic Chemistry (Gurney and Jackson).
34. Evans: An Introduction to Crystal Chemistry (Cambridge).
35. Fieser and Fieser: Organic Chemistry (Reinhold).
36. Finar: Organic Chemistry, Vol. 1 and 2 (Longmans).
37. Friedlander and Kennedy: Introduction to Radiochemistry (Wiley).
38. Frost and Pearson: Kinetics and Mechanism (Wiley).
39. Garner: Chemistry of the Solid State (Butterworth).
40. Gilman, Organic Chemistry, Vol. 1 to 4 (Wiley).
41. Glasstone: Theoretical Chemistry (Van Nostrand).
42. Glasstone: Text-book of Physical Chemistry (Macmillan)
43. Glasstone: Thermodynamics (Van Nostrand).
44. Glasstone, Laidler and Eyring: The Theory of Rate Processes (McGraw-Hill).
45. Gaydon: Spectroscopy and Combustion Theory (Chapman and Hall).
46. Gregg: The Surface Chemistry of Solids (Chapman and Hall).

47. de Groot: Thermodynamics of Irreversible Processes (Amstradam).
48. Guggenheim: Thermodynamics (Elsevier).
49. Guggenheim: Physico Chemical Calculations (Elsevier).
50. Gurney: Ionic Processes in Solution (McGraw Hill).
51. Gurney: Introduction to Statistical Mechanics (Wiley).
52. Hammett: Physical Organic Chemistry (McGraw Hill).
53. Harned and Owen: Physical Chemistry of Electrolyt Solutions (Reinhold).
54. Hildebrand and Scott: Solubility of Non-electrolytes (Reinhold).
55. Hinshelwood: Structure of Physical Chemistry (Oxford).
56. Hinshelwood: Kinetics of Chemical Change (Oxford).
57. Herzberg: Atomic Spectra and Atomic Structure (New York Dover).
58. Herzberg: Infra Red and Raman Spectra (Van Nostrand).
59. Herzberg: Molecular Spectra and Molecular Structure (Van Nostrand).
60. Hopkins: Chapters in the Chemistry of the Less Familia Elements, Vol. 1 and 2 (Stripes Publ. Comp.)
61. Huckel: Structural Chemistry of Inorganic Compounds (Elsevier).
62. Huckel: Theoretical Principles of Organic Chemistry (Elsevier).
63. Ingold: Structure and Mechanism in Organic Chemistry (Cornell).
64. Inorganic Synthesis, 1939 (McGraw Hill).
65. Jeans: Introduction to Kinetic Theory of Gases (Cambridge).
66. Jirgensons and Straumanis: A Short Text-book of Colloid Chemistry (Pergamon Press).
67. Journal of Chemical Education.
68. Klyne: Progress in Stereochemistry, 1954 (Butterworth).
69. Koltz: Chemical Thermodynamics (Prentice Hall).
70. Kruayt: Colloid Science (Elsevier).
71. Laidler: Chemical Kinetics (McGraw Hill).
72. Laidler, Chemical Kinetics of Excited Stat.es (Oxford).
73. Latimer: Oxidation States of Elements and Their Potential in Aqueous Solution (Prentice-Hall).

74. Lederer, and Lederer: Chromatography (Elsevier).

75. Lonsdale: Crystals and X-Rays (Bell).

76. MacDougall: Thermodynamics and Chemistry (Wiley).

77. McBain: Colloid Science (Heath and Co.)

78. Mark and Tobolsky: Physical Chemistry of High Polymeric Systems (Interscience).

79. Maxted: Modern Advances in Inorganic Chemistry (Clarendon).

80. Moeller: Inorganic Chemistry (Wiley).

81. Moelwyn-Hughes; Kinetics of Reactions in Solution (Oxford)

82. Moelwyn-Hughes: Physical Chemsitry (Oxford).

83. Moore: Physical Chemistry (Prentice-Hall).

84. Noller: Chemistry of Carbon Compounds (Sanders).

85. Noyes and Leighton: Photo Chemistry (Reinhold).

86. Palmer: Experimental Inorganic Chemistry (Cambridge).

87. Pauling: Nature of Chemical Bond (Cornell).

88. Pauling and Wilson: Introduction to Quantum Mechanic (McGraw Hill).

89. Percival: Structure of Carbohydrate Chemistry (Muller).

90. Pitzer: Quantum Chemistry (Prentice Hall).

91. Potter: Electrochemistry—Principles and Applications (Clearer-Hume).

92. Price: Mechanisms of Reactions at Carbon—Carbon Double Bond (Inter-Science).

93. Prigogine and Defray: Chemical Thermodynamics (Longmans).

94. Quarterly Reviews.

95. Rae and Reilly: Physico Chemical Methods, Vols. 1, 2 and 3 (Methuen).

96. Remick: Electronic interpretations of Organic Chemistry (Wiley).

97. Remy: Inorganic Chemistry, Vols. 1 and 2 (Elsevier).

98. Ricci: Phase Rule and Heterogeneous Equilibrium (Van Nostrand).

99. Rice: Electronic Structure and Chemical Binding (MacGraw-Hill).

100. Rossini, Chemical Thermodynamics (Wiley).

101. Richtmyer: Kennard and Lauritsen, Introduction to Modern Physics (McGraw Hill).

102. Robertson: Organic Crystalls and Molecules (Cornell).

103. Robinson and Stokes: Electrolyte Solutions (Butterworth).

104. Royals: Advanced Organic Chemistry (Prentice Hall).

105. Rutgers: Physical Chemistry (Interscience).

106. Selwood: Magnetochemistry (Interscience).

107. Sidgwick: The Chemical Elements and Their Compounds, Vols. 1 and 2 (Oxford).

108. Steacie: Free Radicals (Reinhold).

109. Smyth: Dielectric Behaviour and Structure (Wiley).

110. Syrkin and Dyatkina: The Structure of Molecules and the Chemical Bond (Butterworth).
Vols. 1 and 2 (Van Nostrand).

112. Turner and Harris: Organic Chemistry (Longmans).

113. Waters: The Chemistry of Free Radicals (Oxford).

114. Wells: Structural Inorganic Chemistry (Clarendon).

115. Wheland: Resonance in Organic Chemistry (Wiley).

116. Wheland: Advanced Organic Chemistry (Wiley).

117. Yest: Rare Earth Elements and Their Compounds (Wiley).

BRANCH IV-A

Bio-Chemistry

PART I.

First Year.

Written Paper I:

Electrolytic Dissociation, mass law, modern concepts of acid and base, pH buffers.

Surface tension, osmosis, diffusion, colloids, membrane phenomena, Donnan equilibrium.

Reaction rates.

Principles of photometry, spectrophotometry, Zonal and paper electrophoresis, partition and absorption chromatography, sedimentation, and tracer technique with radioactive and mass isotopes. Applications of these techniques in biological studies,

Written Paper II:

Scope of Physiology, the living cell and its parts—constituents of protoplasm and their functions.

Muscle and Nerve: Voluntary and striated muscle; chemical thermal and electrical changes during muscle contraction. The Nerve fibre, its structure, transmission of nerve impulse, degeneration and regenaration of nerves.

Blood: Properties, Functions of red and white blood cells, Blood groups. Haemoglobin and its chemistry, plasma, its composition and functions.

Circulation: Anatomy of the heart, heart-beat and cardiac cycle, properties of cardiac muscle. Capillary and venous blood flow, Pulse, Blood pressure. Vasomotor mechanisms and chemical regulations of arterioles.

Respiration: Mechanism of respiratory movements, blood gas transport and gaseous exchange in the tissues. Expired air, alveolar air. Regulation of respiration.

Spleen, lymphatic tissue, lymph and cerebrospinal fluid.

Digestive system. Mastrication and deglutition. Digestive secretions. Movement of intestines. Call bladder, bile. Mechanism of absorption.

Skin, structure and function.

Functions of nerve cells, reflex action. Spinal cord, its functions. Brain sterm, cerebellum and cerebrum, cerebral localization of motor and sensory areas. Conditioned refluxes. Autonomous nervous system.

Vision and hearing, taste and smell, voice and speech.

Kidney, structure, functions and secretion of urine. Composition of urine.

Structure and function of male and female reproductive organs, menstruation, pregnancy and lactation.

Endocrine organs—their structure.

Written Paper III:

Chemistry of the following: Pentoses, hexoses and disaccharides structure and configuration, Oligosaccharides and polysaccharides,

Lipids: Saturated and unsaturated fatty acid. Phospholipids and other conjugated lipids.

Amino acids, peptides and proteins. Structure and general reactions.

Chemistry of purins, phyrimidines, nucleotides and nucleic acids.

Study of the chemical structure of animal and plant pigments.

Methods of isolation, characterisation and chemical structure of vitamins and hormones.

Practicals—I and II:

Dialysis, pH determination, Photoelectric colorimetry, spectrophotometry and paper chromatography. General reactions of sugars, fats, amino acids and protiens.

Estimation of reducing sugars preparation of starc cogen, and analysis of the products of their hydrolysis. Determination of acid number, iodine number and saponification value of fats.

Preparation of cholesterol. Isolation of carotenes and their separation on a chromatographic column.

Preparation of the following proteins—casein, lactalbumin, arachin and haemoglobin, Preparation of cystine, tyrosine, arginine glutamic acid.

Determination of Nitrogen by kjeldahl and Nessler methods. Also amino-nitrogen and amide nitrogen.

Estimation of terminal amino acids of Proteins.

Preparation of Adenosine triphosphate and determination of its purity.

Estimation of Vitamin A, Vitamin C, Vitamin B and nicotinic acid by chemical methods.

PART II.

Second Year.

Written Paper IV:

Enzymes—Isolation, purification, chemistry, mechanism of action, pH optima, Michaelis constant, reaction kinetics, influence of activators and inhibitors.

Biological oxidation and reduction. Role of enzymes in metabolism.

Bioenergetics including photosynthesis and bioluminescence.

Biochemistry of digestion and detoxication processes.

Intermediary metabolism of proteins, lipids, carbohydrates and nucleic acids.

Study of biochemical aspects of muscle contraction. Coagulation of blood, and production of immune bodies.

Written Paper V:

Study of important aspects of food and nutrition.

Biological value of proteins. Essential amino acids.

Dietary deficiencies. Supplementary realtionship among proteins.

Energy metabolism, Basal metabolic rate and specific dynamic action.

Biochemical functions, physiology and estimation of vitamins. Significance of anti-vitamins.

Study of the biochemical functions, Physiology and assay hormones. Endocrine inter-relationship.

Mineral metabolism and the role of trace elements.

Written Paper VI:

Cell, differentiation, structure and fractionation to microsomes, mitochondria etc.

Bacterial growth and life cycle, metabolism and nutrition. Adaptation and mutation.

General techniques of microbiology, Microbial antagonism, study of antibiotics.

Isolation of pure cultures.

Chemistry and nutrition of moulds and yeasts.

Production by fermentation, processes of alcohols, organic acids, vitamins and enzymes.

Practicals III and IV:

Determination of enzymic activity of pepsin, phosphatase, amylase and urease.

Purification of catalase and study of its properties and Kinetics.

Estimation of enzymes by Thunberg and Warburg techniques.

Estimation of minerals elements like iron, calcium, phosphorus and sulphur.

Microbiological estimation of amino acids and vitamins.

Papers electrophoresis of serum proteins.

Analysis of blood and urine.

Estimation of hormones by chemical methods.

Isolation of mitochondria and study of P.O. ratio.

Proximate analysis of one foodstuff.

Production of fatty livers in rats by CCl_4 poisoning or by ethiomine administration.

Measurement of activity of tracer amounts or readioactive isotopes.

Preparation of culture media, isolation and identification of organisms, staining of organisms, phenol co-efficient and assay of antibiotics.

Branch V—Botany

A Survey of Plant Kingdom

I. The range of structure, reproduction, inter-relationships, evolutionary trends and geographical distribution of the following genera in addition to the forms already included in the 3 year Degree Course in Botany Major.

I. Thallopsida—

Carteria, Tetraspora, Schizochlamys, Ecballocystis;

Characium, Pediastrum, Hydrodictyon, Dictyosphaerium, Coelastrum ;

Cylindrocapsa, Ulva, Sphaeroplea ;

Pithophora, Chaetomorpha, Rhizoclonium ;

Stigeoclonium, Aphanochaete, Draparnaldiopsis, Fritschiella, Trentepohlia, Cephaleuros ;

Bulbochaete;

A general account of the Desmidiaceae with special reference to Cosmarium and Closterium, Mesotaenium, Zygnema, Mougeotia ;

Valonia, Anadyomene, Microdictyon ;

Protosiphon, Bryopsis, Udotea, Codium, Halimeda ;

Acetabularia, Neomeris; A brief account of the fossils;

A general account of Xanthophyceae with a detailed study of Tribonema.

Cyclotella, Navicula.

Euglena.

Colpomenia, Sphacelaria, Padina, Zonaria, Fucus.

Compsopogon, Nemalion, Corallina, Liagora, Gelidium, Champia, Grateloupia.

Chroococcus, Aphanothece, Microcystis.

Lyngbya, Phormidium, Anabaena, Scytonema, Tolypothrix, Stigonema.

A general account of Schizomycetes.

Olpidium, Allomyces, Monoblepharis, Olpidiopsis, Phytophthora, Rhizopus, Pilobolus, Entomophthora, Dipodascus, Taphrina, Aspergillus, Erysiphe, Stigmatomyces, Neurospora, Phyllachora, Chaetomium, Neocosmospora, Rhytidhysterium, Septoria, Curvularia, Cercospora, Sclerotium, Uromyces, Ravenelia, Corticium,Tilletia, Boletus, Geastrum, Scleroderma, Dictyophora, Cyathus.

A general account of Lichens, their structure and mode of life.

A general account of diseases of plants, with special reference to economic crop plants, and measures to combate them.

Plant Viruses :—Little leaf of brinjal ; Sun hemp virus ; Papaya Mosaic ; Sugarcane mosaic.

Origin of viruses—Recent views on isolation and purification of plant viruses—External and internal symptomatological study of viruses—Anatomy of virus-infected plants—Methods of transmission of Viruses.

I. *Bryopsida* :—

Targionia, Cyathodium, Dumortiera, Reboulia, Plagiochasam; Sphaerocarpus ; Riccardia, Fossombronia, Porella, Calobryum;

Notothylas ;

Sphagnum, Andraea, Pogonatum, Bryum.

III. Psilopsida:—

Rhynia, Asteroxylon.

IV. Lycopsida :—

A general account of Lepidodendrales—Lepidodendron, Lepidostrobus, Lepidocarpon, Stigmaria.

V. Sphenopsida —

Sphenophyllum; Calamites ; Cheirostrobus.

VI. Pteropsida :—

A. Filicinae :—Coenopteridinae : Botryopteris, Zygopteris, Ankyropteris, Stauropteris.

Botrychium, Helminthostachys, Angiopteris, Osmunda, Lygodium, Hymenophyllum, Alsophila, Dryopteris, Ceratopteris, Azolla, Salvinia.

B. Gymnospermae :—Lyginopteris, Heterangium, Lagenostoma Medullosa, Trigonocarpus, Rachiopteris, Glossopteris, Caytonia.

Cycadeoidea, Williamsonia.

A comparative account of the order with special reference to Cycas ; Cordaites, Ginkgo, Taxus, Podocarpus, Araucaria, Cedrus, Cupressus, Thuja.

A general account of the Gentales with special reference to Ephedra.

C. Angiospermae :—A comparative study of the following systems of classification : Bentham and Hooker, Engler and Prantl—History of classification—Nomenclatural and herbarium methodologies.

A study of the following families with special reference to the plants of the Madras State.

Chloranthaceae, Magnoliaceae, Menispermaceae, Cruciferae, Capparidaceae, Polygalaceae, Caryophyllaceae, Portulacaceae, Guttiferae, Theaceae, Linaceae, Celastraceae, Rhamnaceae, Sapindaceae, Vitaceae, Saxifragaceae, Droseraceae, Rhizophoraceae,

Combretaceae, Melastomaceae, Lythraceae, Onagraceae, Cactaceae, Aizoaceae, Caprifoliaceae, Campanulaceae, Ericaceae, Sapotaceae, Ebenaceae, Oleaceae, Gentianaceae, Boraginanceae, Lentibulariaceae, Gesneriaceae, Bignoniaceae, Polygonaceae, Podostemaceae, Aristolochiaceae, Piperaceae, Lauraceae, Loranthaceae, Santalaceae, Casuarinaceae, Hydrocharitaceae, Bromeliaceae, Amaryllidaceae, Dioscoreaceae, Pontederiaceae, Commelinaceae, Alismaceae, Eriocaulaceae.

Economic Botany

The important crop plants of India and their distribution. A study in general of cereals, pulses, oil—yielding plants, medicinal plants, fiber—yielding plants, timbers, spices, rubber and later products, gums and resins, dyes, vegetables and fruits, with special reference to such as occur in the families studied.

Embryology

Typical life history of an angiosperm—Micro-and megasporogenesis, —Male and female gametophytes—Endosperm and embryo: polyembryony—Experimental embryology.

Floral Morphology

Morphological nature of floral parts and the following topics concerning the nature of the flower :

Classical views—Theory of Acarpy—Conduplicate carpel.

General information on ontogeny and phylogeny; parallel and convergent evolutionary trends—Reversible and irreversible evolutionary trends—Rates of Evolution—Hollistic concept of the plant body.

Anatomy

Cells, tissues, tissue-systems.

Meristems—Their position and behaviour.

Primary xylem, Primary phloem—concept, structure and function.

Cambium—its function and derivative tissues : Secondary xylem ; perforate and imperforate tracheary cells ; vertical and horizontal systems of parenchyma ; a general account of the phylogenetic trend of specialization.

Secondary phloem ; sieve cells, sieve tubes, companion cells, phloem fibers ; structure in relation to function.

A general account of the structure of coniferous and dicotyledonous timbers with special reference to their commercial utilization.

Leaf : Ontogeny and structure ; leaf-stem relationships.

Root-stem relationships.

Cytology

Cells : a general survey of cytoplasmic and non-cytoplasmic inclusions.

Origin of the cell wall ; structure, physical and chemical aspects.

Mitosis, and meiosis—Descriptive account.

Meiosis in hybrids, polyploids, etc.

Structure of chromosomes—Inversion, deletion, chiasma, etc.

Polyploidy and its significance.

Genetics

Mendel's principle of segregation and of independent assortment—Allelism—Expression and interaction of genes—Multiple factor hypothesis—Gene and Chromosomes and physical basis of inheritance—Linkage—Chromosomal aberrations—Mutation.

Genes in populations—Race formation—Species formation—Determination of Sex—Gene action and the nature of genes—Genetics and development.

Genetic and cytogenetic basis of plant breeding—Techniques in selfing and crossing—Pure line method—Hybridization—Back-crossing—Breeding for disease resistance.

Physiology

The plant cell as a physiological unit; the structure and properties of protoplasm, plasmatic membranes and the cell wall in relation to the physiology of the cell.

Water relations of a plant cell ; the simple osmotic view ; suction pressure and its absolute value ; factors affecting suction pressure ; methods of determining the osmotic pressure and suction pressures.

The relation of the plant cell to dissolved substances ; hydro-diffusion; membrane action and the premeability of plasmatic membranes ; determination of permeability ; factors affecting permeability ; entry of dissolved substances into plant cells ; its mechanism ; measurement of intake of dissolved substances by plant cells.

Absorption of electrolytes and non-electrolytes ; ionic absorption ; accumulation of substances in plant cells ; absorption of toxic substances ; antagonism and synergy.

Water relations of the plant : root absorption ; root pressure ; ascent of water through the stem ; theories regarding its mechanism ; transpiration, cuticular and stomatal ; the number and distribution of stomata ; stomatal movements and factors affecting it ; relation between stomatal movement and transpiration ; influence of external factors on transpiration ; relation between water absorption and water loss ; xeromorphy ; guttation ; significance of transpiration.

Carbon assimilation : general outline of the process of photosynthesis ; raw materials involved, water and carbon dioxide ; path of entry of carbon dioxide and the rate of its absorption ; factors affecting it ; assimilatory pigments, their composition, properties and roles ; conditions affecting the rate of photosynthesis—carbon dioxide concentration, light intensity, temperature, quality of light, internal factors ; law of limiting factors ; products of photosynthesis ; theories regarding the mechanism of photosynthesis ; formation of starch, cellulose and other complex carbohydrates, fats and lipoids;

Nitrogen Metabolism : Source of Nitrogen to plants ; factors affecting the absorption of organic as well as inorganic nitrogen ; the fate of the absorbed nitrogen. Plant proteins and their structure and properties ; synthesis of proteins, (1) In Micro-organisms, (2) In green plants, (3) In root nodules ; nitrogen metabolism and nitrogen loss ; Carbohydrate/Nitrogen Ratio.

Hyterotrophic nuitrition in different groups of plants.

Mineral nutrition : Absorption of minerals and their utilisation.

Major elements : Pottasium, calcium, sodium, magnesium, iron, phosphorus, sulphur. Trace elements : Manganese, zinc, copper, cobalt, iron, molybdenum, boron. Their role.

A general account of enzymes, their classification, properties and role. Theories of enzyme action.

Problems connected with translocation and storage.

Respiration : Outline of the process of respiration ; respiratory quotient ; materials used in respiration ; carbohydrates, fats, proteins ; the intensity of respiration and factors influencing it ; energy release and its utilisation. Anaerobic respiration, its relation to alcoholic fermentation and aerobic respiration ; mechanism of anaerobic respiration and theories thereof ; mechanism of aerobic respiration and role of oxidases. Pasteur effect and oxidative anabolism.

The course of development of the plant body :

Germination : Factors affecting the process ; dormancy and viability ; metabolism of the seed during germination.

Vegetative development : Growth in various plant organs ; growth curves ; rate of growth and factors affecting it ; thermo-growth reaction and light-growth reaction.

Growth hormones : Their nature, properties and role. Mode of action of auxins ; methods of determining the auxin content of plants ; distribution and manifold functions of auxins; auxin transport.

Growth of whole plants ; development of organs and influence of external factors; growth correlations.

Periodicity in plants.

Physiology of reproduction : Vernalization and photoperiodism. Effect of nutrition. Fruit formation and seed setting ; parthenocarpy.

Principles of irritability : Stimuli, their kinds, direction, intensity period ; conduction of stimuli ; response ; latent time.

Movements : Classification and nature.

Autonomic movements : nutation, variation movements, epinasty and hyponasty.

Geotropism ; course of geotropic response ; intensity of stimulation and its effect. Influence of external conditions on geotropic irritability. Seat of graviperception. Mechanism of perception : (1) The Statolith Theory, (2) Hormone Theory. Nature of geotropic response.

Phototropism : Course of phototropic response ; theories regarding perception of light stimulus and the nature of the response.

Chemotropism and other tropistic phenomena.

Nastic movements. Rapid conduction of stimuli in *Mimosa*.

A general idea of recent advances in understanding fundamental concepts in plant physiology by using radio-active isotopes.

Ecology

Plants and environment : Major categories of factors affecting plant life.

Soil : its origin, development, classification, structure and properties. Soil texture and its relation to plants. Organic increment and its importance. Soil organisms and their role. Soil solutes, their kind, reaction and role in the soil. Salinity and plant distribution. Halophytes.

Light : Kinds of radiant energy : importance of quality of light. Influence of other factors on the quality and quantity of light. Importance of light to plants. Heliophytes and sciophytes. Growth form of plants induced by light. Photoperiodism.

Water : Its importance to plants. Sources of water. Atmospheric precipitations, soil water. Water balance problem of land plants. Classification of plants based on their water relations : Hydrophytes, xerophytes, mesophytes.

Temperature : Importance to plants. Cardinal temperatures for physiological activities. Thermoperiodism. Injury due to temperatures. Temperature and plant distribution.

Wind : Its effect on plants. Wind breaks. Wind injury. Wind pollination and wind dispersal.

Biotic factors : Classification of symbiotic phenomena. Relation between plants and animals, nutritive and non-nutritive. Interrelationships between plants : lianes, epiphytes, parasites, lichens, nodule bacteria, mycorrhiza.

The environmental complex and its dynamic nature. Interactions of factors.

Ecological adaptation and evolution of plant form.

Plant communities and their composition, development and classification.

Phenomena of migration, ecesis and succession.

Climax formations. Pre-climax and post-climax.

Seasonal phenomena in vegetation.

Simple methods of studying and charting vegetation.

Major vegetational types and their distribution. Endemism; discontinuous distribution ; insular floras. Theories regarding origin of vegetation and their migratory routes.

Vegetational types of South India ; evergreen forests, wet deciduous forests, dry deciduous forests, scrubs, coastal vegetation.

Books for Reference

Fritsch, F. E.	Structure and Reproduction of Algae, Vols. I and II.
Smith, G. M.	Cryptogamic Botany, Vols. I and II.
Smith, G. M.	Fresh water Algae of the United States.
Gaumann, E. A.	The Fungi.
Gaumann, E. A. & Dodge, W.	Comparative Morphology of the Fungi.
Wolf, F. A. & Wolf, F. T.	The Fungi, Vols. I and II.
Bessey, E. A.	Morphology and Taxonomy of Fungi.
Fitzpatrick, H. M.	The Lower Fungi.
Alexopoulos, C. J.	Introductory Mycology.
Butler, E. J.	Fungi and Disease in Plants.
Kenneth M. Smith	Text-book of Plant virus diseases.
Mundkur, B. B.	Fungi and Plant disease.
Campbell, D. H.	Evolution of Land plants.
Campbell, D. H.	Mosses and Ferns.
Verdoorn, Fr. *et al.*	Manual of Bryology.
Smith, G. M. *et al.*	Manual of Phycology.
Verdoorn, Fr.	Manual of Pteriodology.
Bower, F. O.	Filicales, Vols. I, II and III.
Bower, F. O.	Primitive Land Plants.
Eames, A. J.	Morphology of Vascular Plants, Lower groups.
Coulter, J. M. and Chamberlain, C. J.	Morphology of Gymnosperms.
Pearson, H. H. W.	Gentales.
Warming and Potter	Systematic Botany.
Hutchinson, J.	Families of Flowering Plants, Monocots and Dicots, 2 Vols.
Swingle, D. B.	A Text-book of Systematic Botany.
Rendle, A. B.	Classification of Flowering Plants, Vols. I & II
Pool, P. J.	Flowers and Flowering Plants.
Lawrence, G. H. M.	Taxonomy of Vascuar Plants.

Eames, A. J. and Mac Daniels, L. I.	Introduction to Plant Anatomy.
Esau, K.	Plant Anatomy.
Foster, A. C.	Practical Plant Anatomy.
Maheshwari, P.	Embryology of Angiosperms.
Sinnott, Dunn and Dobzhansky	Principles of Genetics.
Babcock and Clausen	Genetics in relation to Agriculture.
Stiles, Walter	Introduction to the Principles of Plant Physiology.
Mayer and Anderson	Plant Physiology.
Bonner and Galston	Elements of Plant Physiology.
Daubenmire, R. F.	Plants and Environment.
Braun-Blanquet	Plant Sociology.
Walton, John	Introduction to the study of fossil plants.
Arnold, C. A.	An Introduction to Palaeobotany.
Kashyap, S. R.	Liverworts of the N. W. Himalayas.
Turrill, W. B.	New Systematics.
Gates, R.	Practical Ecology.

Branch VI—Zoology

Paper I—Invertebrata

Paper II—Chordata including South Indian fauna.

Paper III—Cytology and Genetic.

Paper IV—Optional (Special) Subject.

Paper V—Embryology and Evolutions.

Paper VI—Animal Physiology and Ecology.

Syllabus

I. Invertebrata:

A comparative study of the organ systems of the Invertebrates emphasising the following:—

The general organisation of the different phyla; progressive steps in the organisation; levels and patterns in organisation; phyla as different patterns; correlation between the patterns and the basic modes of life; adaptive radiation within the phyla; modes of feeding,

locomotion, parasitism, associations. Evolutionary relationships of the phyla; study of the more important fossil groups.

Books recommended:

Invertebrata	...	Borradaile and others.
A General Zoology of Invertebrates	...	G. S. Carter.
Invertebrata—5 Volumes	...	L. H. Hyman.

II. Chordata:

A detailed study of the protochordates; ancestry of chordates and vertebrates. Different groups of chordates and their classification, treated from the point of view of comparative anatomy, palaeontology, distribution and evolution. Adaptive radiation. Colonisation. Faunal changes during geological eras. Paedomorphosis South Indian fauna with reference to the Zoogeography of India.

Books Recommended:

Life Vertebrates	...	J. Z. Young.
Vertebrate Body	...	Romer.
Vertebrate Zoology	...	De Beer.
Man and the Vertebrates	...	Romer.
Life of mammals	...	J. Z. Young.
Comparative Vertebrate Zoology.		L. H. Hyman.
Organic Evolution	...	R. S. Lull.
Biology of Vertebrates	...	Walter.

III. Cytology and Genetics:

Cytology—the general organisation of the cell-Physiochemical organization—Methods of cytological study—Cell membrane, cytoplasm (microscopic and submicroscopic structure), cell inclusions—Nucleus. Nucleic acids and their role in the cell—Chromosome cyle in mitosis and meiosis—Mechanics of nuclear division. Individuality and continuity of chromosomes—Cell physiology with reference to secretions—Tissue culture.

Genetics—Mendelian laws Statistical approach—theory of the gene Nature and action of the gene—Genetics of sex—Genetics in relation to man-blood groups etc. Genetics and evolution; Cytoplasmic inheritance; genetics in relation to breeding; genetics in relation to development.

Books Recommended:

General Cytology	...	De. Robertis and others.
Cytology	...	Gressen.
Principles of Genetics	...	Sinnot, Dunn and Dobzhansky.
Introduction to Modern Genetics.		V. H. Waddington.
Physiological Genetics	...	Goldschmidt.

PRACTICAL I AND II:

Dissections and preparations (including microscopic) of South Indian types of Invertebrata, Prochordata and Chordata. Identification of animals with manuals. Candidates must be able to report on any Zoological collections, including plankton.

IV. Optionals:

(1) Histotlogy, (2) Endocrinology, (3) Entomology, (4) Fishery biology, (5) Parasitology.

1. *Histology*: Structure and formation of animal tissues—chemical composition of tissues—skeletal structures, blood etc. Histochemistry of the principal constituents of the animal body—Proteins, lipids, carbohydrates, inorganic constituents, pigments. Enzymes—their nature and formation. Tissue culture—Radio active isotopes in relation to histology and histochemistry.

Practical:

1. Preparation of tissues for histochemical tests—Frozen Sections, Celloidin and doubie embedding techniques.
2. Identification of proteins, carbohydrates, lipids, inorganic constituents, enzymes.
3. Analysis of blood and body fluid—oxidase and dehydrogenases.

Books Recommended:

Histochemistry—Theoretical and applied	...	Pearse.
Histochimie animale	...	Lison.
Microscopic histochemistry	...	Gomori.
Problems in histochemistry	...	Linderstrom Lang.
Cell chemistry	...	Dean Burke.
Techniques of cyto and histochemistry.	...	Glick.
Biochemical evolution	...	Florkin.

2. *Endocrinology*: Incretory organs—their structure and development. Comparative study of the organs in vertebrates and invertebrates. Histology and histochemistry of endocrine organs—Nature of the secretions—Mode of formation—Neurosecretion. Physiology and interrelation of endocrine glands. Cytology and cytochemistry of secretory tissue of endocrine organs—Endocrine function and its relation to that of nervous system—Methods of study.

Practical:

Histological preparations of endocrine organs; qualitative tests for formed substances using histochemical reagents. Extraction of secretions and a study of their nature; simple experiments with extracts of secretory to demonstrate their physiological role.

Books Recommended:

Hormones in Invertebrates	...	Hanstrom.
Essential of endocrinology	...	Grollman.
Advances in enzymology	...	Edited by Nord and Werkmann.

3. *Entomology*: The scope of the course is as indicated in the General Text-book of Entomology by A. D. Imms. The subject will by treated under the following heads.

Anatomy; Physiology; Embryology; Systematics; the role of insects in human welfare and agriculture.

Practical:

Candidates will be expected to dissect and make preparations of South Indian insects in regard to Anatomy and Embryology. A few experiments in physiology of Insects will be expected. At the practical examination collection of insects and records of laboratory and field work shall be submitted.

Books for study:

General Text book of Entomology	...	Imms.
Insect Physiology (Methuen's monographs).		Wigglesworth, V. B.

Books for reference:

Text-book of Entomology	...	Packard.
College Entomology	...	Essig.
Principles of Insect Physiology	...	Wigglesworth.
Principles of Insect Morphology	...	Snodgrass.
Insect Physiology	...	Roeder.
Embryology of Insects (Myriapeds).		Johansen & Butt.

Manual of Entomology	...	Lefroy.
Fundamentals of Insect	...	Metcalf & Flint.
Some South Indian Insects	...	Fletcher.
Hand book of Economic Entomology for South India	...	Ramakrishna Ayyar.
Collecting, Preserving and Studying Insects.		Harold Oldroyd.

4. *Fishery Biology*: History of Fishery development—World fisheries—Fishery in India—Main features of anatomy and physiology of fishes—classification and bionomics of economically important fishes of South India—Feeding habits—Breeding—Productivity—Acclimatization—Migration—freshwater, marine and brackish-water forms—fish population.

Fish farming—Major fisheries of South India—Marine products of Commerce—chank, oyster, prawns, crab, etc. fish industry as part of national economy—fishery methods—fishing tackle and craft.

Practical:

Identification of South Indian marine, fresh water and estuarine fishes. Study of the food and feeding habits—analysis of stomach contents of some important food fishes of South India. Acquaintance with the common fishing tackle and craft—methods of preservation of fish.

Books Recommended:

1. Rounsefell and Fverhart: Fishery Science.
2. Tressler: Marine Products of Commerce.
3. Russell E. S.: Over-fishing problems.
4. Morgan: World Sea-fisheries.
5. Bottemanne: Principles of fishery development.
6. Kestevan G. L.: An examination of certain aspects of methodology and theory of Fishery Biology.
7. Lagler: Fresh-water Fishery Biology.
8. Government of India: Hand-book of Indian fisheries.
9. Devanesan and Chidambaram: Common food fishes of Madras Presidency.
10. Physiology of fish by Margaret Brown.

5. *Parasitology*: 1. General: Parasites, Commensals and symbionts—Origin and Evolution of parasites—Principles of Parasitism and types of parasites—Ecology of Parasitism—host specificity; immunological phenomena—effects of Parasitism on hosts and parasites; physiology of parasites. Methods of transmission; contamination, contagion, inoculation and penetration. Control of parasites—prephylactic and therapeutic measures.

2. The biology, life cycle and pathogenicity of important representative of Protozoa, Trematoda, Cestoda, Nematoda, Acanthocephala, Acarina, Pentastomida and insecta.

Practical:

1. Collecting, preserving and mounting of parasites.
2. Techniques in the processing and microscopical examination of blood, faeces, urine etc. for parasites.
3. Identification of the important parasites belonging to the groups enumerated above.

Books for study:

1. Introduction to Parasitology by A. C. Chandler.
2. Parasites and parasitism by T.W.M. Cameron.
3. Parasitism and symbiosis by Maurice Caullery.

Books for Reference:

1. Nematode Parasites of Animals by Lapage.
2. Veterinary Parasitology by Lapage.
3. Human Helminthology by E. C. Faust.
4. Introduction to Parasitology by A. S. Pearse.
5. Human Parasites and Parasitic Diseases by K. B. Chatterji.
6. Ecology of Animal Parasitology by Jean G. Baer.

V. Embryology and Evolution:

(a) Comparative embryology of chordates.

(b) Experimental embryology with reference to the following aspects: Fertilization—Physiology and theories of fertilization—Axial organization. Gradient fields—Chemodifferentiation—problem of differentiation—Organogenesis. Growth and form-Functional differentiation—Hormones in development—Metamorphosis. Maintenance of form in the multicellular body. Evolution—Modern concepts,

Books Recommended:

Comparative Embryology of Vertebrates. C. E. Nelson.

Principles of Embryology ...	C. H. Waddington.
Embryos and Ancestors ...	De Beer.
Outlines of Developmental Physiology.	Raven, P.
Animal Evolution ...	G. S. Carter.
Hundred years of Evolution ...	G. S. Carter.
Evolution as a process ...	H. S. Huxley.
Evolution, a modern synthesis ...	H. S. Huxley.
Evolution ...	De Beer.

PRACTICAL III:

(*a*) Preparation of organisms and tissues for microscopic examination including procedures of preservation, microtomy, staining and mounting. Candidates will be required to submit slides prepared by them of which at least 24 shall be serial sections.

(*b*) Practical work relating to optional subjects: Practical records are to be submitted.

VI. Animal Physiology and Ecology:

Physical and chemical features of the living substances; salinity pH, alkalinity, permeability, osmosis, Nutrition, vitamins; intake of food, digestion, enzymes, absorption. Utilization of chemical energy, metabolism, heat production and loss; Biological oxidation, respiration, respiratory mechanism and regulation. Water balance, osmotic and ionic regulation.

Physiological problems of colonisation of new habitats. Metabolism of nitrogen, secretion and excretion. The irritable process, stimulation, conduction, perception, correlations. Endocrine mechanism.

Ecology:

Air and water as media substrata; water, sea as biological environment. Temperature, light and nutrients as factors of the environment. Relation within species and between species. Communities, different kinds; succession and fluctuation. Dynamic of the eco system.

PRACTICAL IV:

Estimation of salinity, pH and dissolved oxygen. Aquatic and aerial respiration of prawn, cockroach, fish and frog. Breathing movements and heart-beat of frog in relation to temperature. Examination of blood and circulation in cockroach, prawn, fish and frog. Qualitative studies of digestive enzymes of lamellibranch, cockroach and scorpion. Experiments on osmotic increase of volume and weight of crab and prawn; effect of temperature on ciliary activity of fresh water mussel. Salt loss and absorption in fish. Muscle twitch in frog. Qualitative study of excretory products in cockraoch, fish and lizard. Water loss in cockroach. Record of practical work done will have to be submitted.

Candidates are expected to study the ecology of selected areas and make collections during instructional tours.

Books for Study:

Comparative Animal Physiology ...	Prosser & Others.
Comparative Physiology ...	B. T. Scheer.
Comparative Biochemistry ...	E. Baldwin.
Physiological Approach to Invertebrates.	Welsh & Smith.
Elements of Ecology ...	G. L. Clarke.

Books for Reference:

An Outline of General Physiology ...	Heilbrunn.
General Physiology ...	Hugh Davson.
Recent Advances in Invertebrte Physiology ...	B. T. Scheer.
Principles of Insect Physiology ...	Wigglesworth.
Oceans ...	Sverdrup and others.
Biological Chemistry and Physics of sea water ...	Harvey.
Animal Ecology ...	Macfayden, A.
Aspects of Deep Sea Biology ...	Marshall, N. B.
Limnological Methods ...	Paul S. Welch.
Marine Ecology ...	Morre, Hilary B.

Branch VII—Geology

Syllabus

Part I—General and Structural Geology

Written Paper I.

Isostasy, Interior of the Earth, Age of the Earth, Mountain building. Island arcs. origin of the earth, land forms, topography and structure, radioactivity and thermal cycles, submarine geology, glaciation, cycles of erosion, continental drift, transgression and regression, rift valleys, geosynclines, arid regions, shore lines climate, terrestrial magnetism, concept of stress and strain, deformation in rocks, complex folds (drags, nappes etc.), rupture, complex and complicated faults, lineation and foliation, plutons and granite tectonics.

Advanced Crystallography and Mineralogy : Written Paper II.

32 classes of symmetry, twinning, crystal projections, goniometry, calculation of crystal elements—An harmonic and harmonic ratios, Napier's rules, equation of the normal for the rectangular systems Federow's crystal setting, theories of crystal structure, X-ray analysis of crystals, crystal chemistry.

A study of the following groups of minerals — Felspar, amphibole, pyroxene, olivine, mica, nepheline, leucite, sodalite, scapolite, ilminite, apatite, garnet, spinel and ilmenite, epidote, zeolite, uranium and thorium, rare earths determination of refringence, birefringence extinction angles, optic axial angles, optic orientation, pleochrioic scheme, optic sign, dispersion. Federow technique—Determination of anorthite content and twin laws of felspars, Integrating stage, special moleculars, measurement of length, breadth and magnification.

Paleontology, General Stratigraphy and Indian Geology :

Written Paper III.

The morphological characters of various phyla of the invertebrates. A general outline of the vertebrates with special reference to their evolution. An outline of paleobotany.

General principle of stratigraphy, standard stratigraphical scalas applicable to Europe and America, Palaeo-geographical maps of the world.

Stratigraphy of India with type fossils.

Practical I :

Calculations of crystal elements, Vrotous, two-circle goniometry.

Determination of optic orientation, pleochoric schemes, optic sign, birefringence by Berek's compensator, 2V by Federow method by Mallard method, extinction angle by the method of Nemato and Turner, refringence by the method of Fergusson and Peacock, determination of anorthite content and twin laws of plagioclases by the method of Reinhard, the single variation method of Tsuboi and Merwin.

Mineral chemistry, calculation of mineral formulae after Warre , Winchell, Niggli etc.

Practical II.

Interpretation of geological maps, problems in structural geology, topographic surveying-chain, plaintable, theodolite, dumpy level. Identification of fossils.

Second year

Petrology— Written Paper IV

Part II

Principles and systems of classification of igneous, metamorphic and sedimentary rocks.

Description of the following groups of rocks, granite, diorite, syenite, lampro Phyre, monzonite, gabbro, shonkinite, felspathoidal locks, peridotite with their hypabyssal and volcanic equivalents.

Theories of origin of igneous rocks. Important investigated silicate systems and their application in petrogenesis. Origin of granite. Felspathoidal rocks, monomineralic rocks, Pegmatites, lamprophytes, petrographic provinces, variation diagrams.

Kinds of metamorphism, facies and grades of metamorphism, metamorphic minerals, processes and structures, effects of various kinds of metamorphism on pre-existing rocks, description of catalastic, maculose, schistose, gneissose and granulose rocks. Origin of charnockites.

Sources of production of sediments, transportation, deposition, idagenesis and lithification of sediments, modification of sedimentary processes. Products of sedimentation, textures and structures, characteristics of diferent realms of sedimentation, applied sedimentation.

Petrofarbric study, kinds of diagrams and their interpretation, practical application of petrofabric study.

Economic Geology—Written Paper V

Principles and processes of ore deposition, classification of ore, deposits, characteristics, description and world distribution and uses of epithermal, mesothermal, hypothermal, contact, pegmatitic, magmatic and detrital deposits. The description and distribution of Indian ores, coal and petroleum. Metallogenetic epochs and provinces and Niggli's system. Principles of ore microscopy. Optical and chemical methods of identification of minerals.

Applied Geology—Written Paper VI

Fields of applied geology.

Engineering—Buildings materials, stability of hillsides and cliffs, quarrying and tunnelling, dams, reservoirs.

Mining—Prospecting, sampling, evaluation and estimation of mineral deposits. Methods of ore beneficiation, Methods of Mining.

Underground water : fluids of various origins, water-table, composition of underground water, water analysis and its interpretation origin of underground water, springs, groundwater surveys, wells replenishment of groundwater, conservation of groundwater.

Geophysical prospecting: electrical, magnetic, gravitational, seismic radioactive and geochemical methods. Isotope geology, atomic fuels.

Practical I:

Mechanical separation of minerals, sedimentary analysis of rocks, volumetric and gravimetric estimation of rock constituents. Calculations in petrochemistry, chemical analysis of rocks, construction and interpretation of variation diagrams, the Niggli system—petro-fabric analysis and the preparation of petrofabric diagrams. Microscopic examination of rock slices. Determination of trace elements. Preparation of thin sections.

Practical II :

The use of various geophysical instruments, chemical analysis of ores, optical examination—Reflectivity and anisotropy, Preparation and polishing of ores, Microchemical and spot-tests, ore-dressing.

Geological mapping of prescribed area.

Text-books and books for reference :

I. General and Structrual Geology :

Books for study :

Principles of Physical Geology : Arthur Holmes, Thomas, Nelson & Co.

Structural Geology : Billings, Prentice Hall, Inc., New York.

Unstable Earth : J.A. Steers, Methuen & Co.

Geological

Maps : R.H. Chalmers, Oxford University Press.

Field Geology: F.H. Lahee, McGraw Hill & Co., New York.

Books for reference :

Principles of Structural Geology : C. R. Nevin, John Wiley & Son, N. Y.

Geomorphology : C. A. Cotton, Whitcombe & Tombs.

Pulse of the Earth : Umbgrove.

Strength and Structure of the Earth : Daly, Prentice Hall.

Physical Basis of Geography : Wooldridge & Morgan.

II. Advanced Crystallography and Mineralogy:

Books for Study :

Introduction to Crystallography : P. C. Phillips, Longmans Green & Co.

Optical Crystallography: E. Wahlstrom, John Wiley.

Text-book of Mineralogy : E. S. Dana, John Wiley.

Books for reference :

Crystallographv : W. J. Lewis.

Systematic Crystallograpahy : T. V. Barker.

Graphical and Tabular Methods in Crystallography: T. V. Barker.

Crystallography and Practical Crystal Measurements : A. E. H. Tutton.

System of Mineralogy: E.S. Dana and Others, John Wiley.

Crystals and the Polarising Microscope: Hartshorne and Stuart Arnold.

Manual of Petrographical Methods : Johannsen.

Bulletins and Records relating to minerals: G. S. I. Publications.

Rocks and Mineral Deposits : Paul Niggli.

III. Palaeontology, General Stratigraphy and Indian Geology :

Books for study:

Outlines of Palaeontology : H. H. Swinnerton.

Stratigraphical Geology : M. Gignoux.

Geology of India : D. N. Wadia, Macmillan & Co.

Geology of India : M. S. Krishnan, Higginbothams, Madras.

Books for reference:

Text-book of Palaeontology: Zittel Vols. I, II and III

Principles of Palaeontology : Shrock & Twenhofel.

A manual of the Geology of India & Burma: E. S. Pascoe' Vol. I.

Vertebrate Palaeontology : Romer.

Man in Evolution : M. R. Sahni : Orient Longmans.

IV. Petrology :

Books for study :

Principles of Petrology : G. W. Tyrrell.

Metamorphism : A. Harker Methuen & Co.

Petrography : An Introduction to the study of Rocks in Thin Sections.

Howell Williams and others, W. H. Freeman & Co., San Francisco.

Theoretical Petrology : Tom F. W. Barth, John Wiley.

Petrographic Methods and Calculations : A. Holmes, Van Nostrand & Co.

Books for reference :

Sequence in Layered Rocks : R. R. Shrock, McGraw Hill Co.

Evolution of Igneous Rocks : N. L. Bowen, Princeton University.

Principles of Sedimentation : Twenhofelf, McGraw Hill.

Igneous and Metamorphic Petrology : Turner and Verhoogan, McGraw Hill.

The Origin of Metamorphic and Metasomatic Rocks : Hen Ramberg, University of Chicago Press.

Igneous Rocks and Depths of the Earth : R.A. Daly, McGraw Hill.

Descriptive Petrography of Igneous Rocks : Johannsen Vols. I to IV, University of Chicago Press.

Structural Petrology of Deformed Rocks : H. W. Fairbairn Addison—Wesley Publication Co.

Manual of Sedimentary Petrology : Krumbein and Pettijohn Appleton Century Crafts Inc. New York.

V. Economic Geology:

Books for study :

Economic Mineral Deposits : A. M. Bateman, John Wiley.

Mineral Deposits : W. Lindgren, McGraw Hill.

Microscopic Determination of Ore Minerals : M. N. Short, U.S.G.S. Bulletin No. 914.

Bulletins on Economic Minerals—Published by the G.S.I.

Books for reference :

Promotion of Mineral Deposits : A. M. Bateman.

Fiftieth Anniversary Volume of Economic Geology, U.S.A.

India's Mineral Wealth ; Coggin Brown & A.K. Dey, Oxford University Press.

Industrial Minerals & Rocks: Seeley Mudd Volume of A.M.I.E Publication.

Non-metallic Minerals : Ladoo & Myers.

Textures of Ore Minerals : A. B. Edwards, Aus. Inst. of Min. and Met.

Minerals in World Industry : Voskil.

VI. Applied Geology :

Book for study :

Mining Geology : H.E. Mckinstry, Prentice Hall.

Engineering Geology : C. S. Fox, Technical Press, London.

Book for reference :

Geology and Engineering : Legget McGraw Hill.

Ground Water Geology : Tolman.

Ground Water Geology : V. D. Rao.

Introduction to Geophysical Prospecting : Dobrin, McGraw Hill.

Principles of Geochemistry : Brian Mason.

Elements of Ore Dressing : Taggaret, John Wiley.

Text-books and books for reference:

I. General and Structural Geology:

Books for study:

Principles of Physical Geology: Arthur Holmes, Thomas Nelson & Co.

Structural Geology: Billings, Prentice Hall, Inc., New York.

Unstable Earth: J. A. Steers, Methuen & Co.

Geological.

Maps: R. H. Chalmers, Oxford University Press.

Field Geology: F. H. Lahee, McGraw Hill Co., New York.

Books for reference:

Principles of Structural Geology: C. R. Nevin, John Wiley & Son, N.Y.

Geomorphology: C. A. Cotton, Whitcombe & Tombs.

Pulse of the Earth: Umbgrove.

Strength and Structure of the Earth: Daly, Prentice Hall.

Physical Basis of Geography: Wooldridge & Morgan.

II. Advanced Crystallography and Mineralogy:

Books for study:

Introduction to Crystallography: P. G. Phillips, Longmans Green & Co.

Optical Crystallography: E. Wahlstrom, John Wiley.

Text-book of Mineralogy: E. S. Dana, John Wiley.

Books for reference:

Crystallography: W. J. Lewis.

Systematic Crystallography: T. V. Barker.

Graphical and Tabular Methods in Crystallography: T. V. Barker.

Crystallography and Practical Crystal Measurements: A. E. H. Tutton.

System of Mineralogy: E. S. Dana and Others, John Wiley.

Crystals and the Polarising Microscope : Hartshorne and Stuart Arnold.

Manual of Petrographical Methods: Johannsen.

Bulletins and Records relating to minerals: G. S. I. Publications.

Rocks and Mineral Deposits: Paul Niggli.

III. Palaeontology, General Stratigraphy and Indian Geology:

Books for study:

Outlines of Palaeontology: H. H. Swinnerton.

Stratigraphical Geology: M. Gignoux.

Geology of India: D. N. Wadia, Macmillan & Co.

Geology of India: M. S. Krishnan, Higginbothams, Madras.

Books for reference:

Text-book of Palaeontology: Zittel, Vols. I, II and III.

Principles of Palaeontology: Shrock & Twenhofel.

A manual of the Geology of India & Burma: E. S. Pascoe, Vol. I.

Vertebrate Palaeontology: Romer.

Man in Evolution: M. R. Sahni: Orient Longmans.

IV. Petrology:

Books for study:

Principles of Petrology: G. W. Tyrrell.

Metamorphism: A. Harker Methuen & Co.

Petrography: An Introduction to the study of Rocks in Thin Sections.

Howell Williams and others: W. H. Freeman & Co., San Francisco.

Theoretical Petrology: Tom F. W. Barth, John Wiley.

Petrographic Methods and Calculations: A. Holmes, Van Nostrand & Co.

Books for reference:

Sequence in Layered Rocks: R. R. Shrock, McGraw Hill Co.

Evolution of Igneous Rocks: N. L. Bowen, Princeton University.

Principles of Sedimentation: Twenhofel, McGraw Hill.

Igneous and Metamorphic Petrology: Turner and Verhoogan McGraw Hill.

The Origin of Metamorphic and Metasomatic Rocks: Hen Ramberg, University of Chicago Press.

Igneous Rocks and Depths of the Earth: R. A. Daly, McGraw Hill.

Descriptive Petrography of Igneous Rocks: Johannsen, Vols. I to IV, University of Chicago Press.

Structural Petrology of Deformed Rocks: H. W. Fairbairn Addison—Wesley Publication Co.

Manual of Sedimentary Petrology: Krumbein and Petti john, Appleton Century Crafts, Inc., New York.

V. Economic Geology:

Books for study:

Economic Mineral Deposits: A. M. Bateman, John Wiley.

Mineral Deposits: W. Lindgren, McGraw Hill.

Microscopic Determination of Ore Minerals: M. N. Short, U.S.G.S. Bulletin No. 914.

Bulletins on Economic Minerals, Published by the G.S.I.

Books for reference:

Promotion of Mineral Deposits: A. M.Bateman.

Fiftieth Anniversary Volume of Economic Geology, U.S.A.

India's Mineral Wealth: Coggin Brown & A. K. Dey, Oxford University Press.

Industrial Minerals & Rocks: Seeley Mudd Volume of A.M.I.E. Publication.

Non-metallic Minerals: Ladoo & Myers.

Textures of Ore Minerals: A. B. Edwards Aus. Inst. of Min. and Met.

Minerals in World Industry: Voskil.

VI. Applied Geology:

Books for study:

Mining Geology: H. E. Makinstry Prentice Hall.

Engineering Geology: C. S. Fox, Technical Press, London.

Books for reference:

Geology and Engineering: Legget, McGraw Hill.

Ground Water Geology: Tolman.

Ground Water Geology: V. D. Rao.

Introduction to Geophysical Prospecting: Dobrin, McGraw Hill.

Principles of Geochemistry: Brian Mason.

Elements of Ore Dressing: Taggaret, John Wiley.

BRANCH VIII—GEOGRAPHY

India

Part I:

Location and size—Frontiers—Space relations—Structure—Relief—Drainage Patterns and River regimes—Climate—climatic types—Soil—Soil erosion—Distribution of fauna—Vegetation—Irrigation—Agriculture—mineral resources—Industries—Economic Development—Population—Economic Problems.

Correlation between regional types—Natural, cultural, economic and political regions.

Part II:

Detailed and systematic study of the regional geography of India with special reference to Madras State.

Reference :

O. H. K. Spate :

India and Pakistan

Asia

Part I :

1. Physical setting—Structure and Relief—Drainage patterns and river regimes.
2. Climate and climatic types.
3. Vegetation and soils.
4. Resources : agricultural—industrial and mineral.
5. The peoples—Historical retrospect—Commercial and Cultural contacts—Impact cultures.
6. Recent Political changes.
7. Population Studies.

Part II :

8. Detailed study of—

South West Asia.

South East Asia.

The U.S.S.R.

China and Japan.

Central Asia.

Climatology

I. Introduction and basic principles—Nature of atmosphere—Structure and stratification.

II. Solar radiation—Temperature—Wind and Pressure, Atmospheric moisture and precipitation.

III. Air Masses, Fronts, Cyclones and anticyclones.

IV. Weather analysis and Weather forecasting.

V. Microclimatology.

VI. Climatic changes.

***Reference* :**

Byers : Meteorology.

Peterson : Advanced Meteorology.

Brunt : Advanced Meteorology.

Humphry : Physics of the Air.

Geomorphology

I. Scope and content of Geomorphology.

II. Relief features of the earth including the study of from of the earth as a whole, of continents and of ocean basins—Nature, origin, development and classification.

III. Structure, process, stage and the geomorphic cycle.

IV. The peneplain concept.

V. Normal or fluvial geomorphic cycle.

VI. Geomorphic Cycles in deserts, limestone areas, glaciated areas.

VII. Geomorphology of coasts.

VIII. Coral shorelines, Coral reefs and atolls.

IX. Landforms from vulcanicity.

X. Geomorphic study of plains, plateaus, dome mountains, block mountains, folded mountains and complex mountains.

Von-Engelin : Geomorphology.
Cotton : Landscape.

Cartography

I. Scope and Content of Cartography.

II. Advanced study of map projections—Simple conical with two standard parallels—the rectangular polyconic—Conical equal area with one standard parallel—Conical equal area with two standard parallels—the Conical orthomorphic, Cassinis, Mercators and the Gauss conformal projections—transverse and oblique Zenithal projections—the Cubic (gnomonic) projection, perspective projections—the oblique orthographic, Aitoffs projection.

III. Representation of the earth's pattern on maps. Symbols and relief features. Lettering, composition, drafting of maps and methods of map reproduction.

IV. Mapping and diagrammatic representation of climatic economic, population and land use data.

V. Simple Astronomy, shape and size of the earth and simple trigonometrical calculations and photographic surveying.

VI. Rightangled Spherical triangles—Solution, to distances and direction of the earth.

VII. Determination of latitude and longitude.

VIII. Triangulation, traversing, levelling and contouring.

Reference :

Jameson and Ormsby : Mathematical Geography, Vol. II.

Jameson : Advanced Surveying.

Raisz : Cartography.

Close : Text-book of topographical and Geographical Surveying.

Monkhouse and Wilkinson : Maps and Diagrams.

Photogrammetry and Aerial Photographs.

1. Air Cameras, pinciples of construction, air surveys, field work, ground control, air stations.

2. Air surveys of the world, progress since second world war and as applied to advanced centres and under-developed countries. Air Survey in India.

3. Mapping from air, air stations, destination, directions of flights, over-lapping, air surveys as related to, and influenced by weather conditions, cost of production.

   Aerial photographs, verticals, split vertical, Obliques, Mosaics, Stereograms, Scales.

5. Steroscopes, steroscomparatographs, contour-finding, simple elevation determination.

6. Aerial photo interpretation, principles of identification and reconstruction, tone, texture, shades, patterns, association, relative heights, identification keys.

7. Aerial photographs, place in the study of geographical, geological and archaeological facts—limitations of aerial photographs.

GEOGRAPHY AND PLANNING

Syllabus.

I. Definition and Scope of Planning.

II. Geographical basis of planning.

III. Planning for prosperity, self-sufficiency, stable economy, etc., in relation to (*a*) Utilisation and conservation of economic resources (*b*) Demographic factors (*c*) Science and Technology.

IV. Types of Planning.

(*a*) Regional Planning.

(*b*) Water resources planning with reference to the T.V.A. Colorado, Yellow River, rivers of India, African Rivers, the Eupharates and Tigris, etc.

(*c*) Town and country planning.

(*d*) State and National Planning.

V. Planning in India—

The first and second five-year plans, the Community Development Projects and the National Extension Programmes.

Industrial Planning.

Population Planning.

VI. Planning in other countries—U.S.A., U.S.S.R., Commonwealth countries, China, etc.

VII. The Problem of planning, the economic, social and political factors in planning.

Practical I :

Allied to Geography of India

Geographical survey of an approved village—Study and interpretation of Survey of India topographic maps.

Books :—

1. Sylvester : Map and Landscape (George Philips).
2. Garnett Alice : Interpretation of topographical maps.

Practical II :

Allied to Asia.

Economic maps and diagrams based on data pertaining to Asia. Population maps and Diagrams based on data pertaining to Asia.

Books :—

1. Monkhouse and Wilkinson : Maps and Diagrams.
2. A. A. Miller : Skin of the Earth (Methuen).

Practical III :

Allied to Climatology.

1. Use of weather instruments, Preparation of climatic maps and diagrams.

3. Interpretation of weather maps and climatic maps.

Books :—

1 Hints to Travellers, Parts, I and II.

2. Monkhouse and Wilkinson : Maps and Diagrams.

3. A. A. Miller : Skin of the Earth.

Practical IV :

Allied to Geomorphology

1. Landscape drawing and field—sketching ; Block—diagrams.

2. Slope analysis and study of landforms of selected topographic maps—Indian and Foreign.

3. Geological maps.

Books :—

1. Monkhouse and Wilkinson—Maps and diagrams (Methuen).

2. Lobeck—Block diagrams and sketches (Mcgraw Hill).

3. Ellis—Geological Maps.

4. Dake and Brown—Interpretation of topographical and geological maps.

5. A. A. Miller—Skin of the Earth.

Practical V :

Allied to Cartography.

1. Trigonometrical survey of a specified area comprising the following :

   (a) Determination of latitude, longitude and azimuth.

   (b) Measurement of base line.

   (c) Theodolite triangulation.

   (d) Determination of heights.

   (e) Mapping by plane-table.

Books :—

1. Raisz : Cartography (Mcgraw Hill).
2. James & Ormsby : Survey and Projections., Parts I and II
3. Hinks : Maps and survey.
4. Jamson : Advanced survey
5. Steers : Map Projections.

Practical VI :

Allied to Photogrammetry.

Suitable exercises will be set on all sections of the syllabus

Branch X—Physiology

No detailed syllabus is prescribed. Candidates appearing for the M Sc. Degree in Physiology will have a masterly knowledge of all the aspects of Physiology and a working knowledge of Biochemistry, Bio-Physics, histological techniques and history of Physiology.

They should thoroughly acquaint themselves with the recent developments in Physiology and trends in Physiological research as published in the standard journals* during the last five years.

*Physiological Reviews.

Journal of Physiology.

American Journal of Physiology

Annual Review of Physiology.

Acta Physiological Scandinanica.

Quarterly Journal of Experimental Physiology and Cognate Medical Sciences.

Journal of Experimental medicine

Endocrinology.

Journal of Applied Physiology.

One of the following topics shall be offered for special study:

(*a*) Cardiovascular System including blood and aspiration.

(*b*) Central Nervous System including autonomic nervous system and special senses.

(c) Endocrinology including metabolism and reproductive system.

(d) Body fluids and kidney

(e) Digestion.

(f) Physiological chemistry.

(g) Comparative and Cellular Physiology.

Subjects for the theory examination will be distributed as follows:

Paper I—3 hours.

Protoplasm, Cell, Tissue.

Blood and Lymph.

Circulation of Blood.

Respiration.

Excretion.

Digestion.

Metabolism and Nutrition.

Paper II—3 hours.

Endocrines.

Reproduction.

Muscle.

Nervous system.

Special senses.

History of Physiology.

Paper III—3 hours.

Special subject.

(Practicals)

Experimental Physiology.

Examination time—3 hours.

A. Amphibian experiments :

1. Common experiments with muscle-nerve preparation.

2. Common experiments on the frog's heart in situ and excised heart.

B. Mammalian experiments :

Coronary Perfusion of the excised heart—influence of temperature on beat. Action of drugs. (adrenaline, acetycholine, pitres sin histamine, etc.)

Graphic record of arterial blood pressure in dog, cat and rabbit—effects of change in blood volume—stimulation of vagus, stimulation of splanchnic nerve and drugs.

Graphic record of aurticular and ventricular contraction of the dog's heart—effect of vagal stimulation and drugs. Recording of changes in ventricular volume by Henderson's Cardiometer.

Gecording of changes in volume of spleen—action of drugs.

Graphic record of respiratory movements in animals.

Graphic record of intestinal movements and tone—the action drugs on them. (a) In situ. (b) Isolated.

Renal secretion—effects of injection of drugs.

Limb perfusion—Action of drugs.

Study of secretion from the salivary gland of a dog.

Preparation of decrebrate rigidity (Sherrington).

C. Human experiments :

Determination of the specific gravity of blood.

Fragility of Red Blood Cells.

Erythrocyte Sedimentation rate.

Viscosity of blood.

Measurement of surface tension by using stalagmometer.

Coagulation time of blood.

Bleeding time.

Enumeration of R.B.C. ; W.B.C. and Platelets. Mean corpuscular Volume of R.B.C.

Haemoglobinometry—Average corpusculai haemoglobin content-colour.

Index.

Relative volumes of blood cells and plasma.

Blood grouping and matching.

Blood gas analysis

Collection and analysis of Alveolar Air, Expired air, Atmospheric air.

Spirometry.

Carbon dioxide combining power by using Van Slykes Apparatus.

Sphymography.

Arterial Blood Pressure.

Electro-Cardiography.

Venous pulse tracing.

Basel Matabolic Rate.

Oxygen debt.

Plethysmography—Blood flow in limbs.

Practical Histology

(Examination time—3 hours.)

Preparation of tissue for histological examination—fixing, embedding and section cutting etc.

Identification and description with diagrams of microscopic preparation of any normal tissue or organ.

Candidates will be familiar with the following staining techniques.

Eosin—Haemotoxyline.

Van Geison.

Mallory and Supra Vital.

Bio-chemistry Practical.

(Examination time—3 hours.)

Determination of pH of solutions.

Properties and reactions of Carbohydrates, Fats and Proteins.

Estimation of Carbohydrates.

Properties of disgestive enzymes—Bile—analysis of Gastric contents.

Haemoglobin and its derivatives. Their absorption spectra.

Quantitative estimation of Chlorides, Urea, sugar, non-protein Nitrogen, Total nitrogen and Calcium in blood ; and Chlorides urea, sugar and uric acid in urine.

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CHAPTER XLVIII

Degree of Master of Science (Home Science)

(Regulations).

Eligibility.

1. A candidate may present herself for the Degree of Master of Science in Home Science under the following conditions:

(i) she should have passed the B.Sc. Degree in Home Science of this University or an examination of any other University accepted by the Syndicate as equivalent thereto; and

(ii) have undergone a course of study extending over a period of two academic years in an institution recognised by or affiliated to the University.

Course of study.

2. The course shall comprise the study of anyone of the following branches according to the syllabuses prescribed from time to time:

Branch I—Home Management.

Branch II—Institution Management.

3. The course of study in each of the branches shall be as follows.

Branch I—Home Management.

*(1) Psychology and Family Organisation

*(2) Sociology

*(3) Textiles, Clothing and Laundering

*(4) Methods of Investigation

* Syllabuses common.

I

(5) Family Housing

(6) Home Nursing and Bacteriology

(7) Theory and Practice in Home Management (including Related Art*)

(8) Personal and Family Economics

(9) Consumer-Buyer Economics

(10) Six-weeks practical housekeeking in a cottage each year.

(11) Thesis on some approved topic related to Home Management.

Branch II—Institution Management.

*(1) Psychology

*(2) Sociology

*(3) Textiles, Clothing and Laundering

*(4) Methods of Investigation

(5) Home Management (Related Art)

(6) Business Management

(7) Institution Management and Dietetics

(8) Three-months' internship in an approved Hospital

(9) Three-months' internship in an approved institution

(10) Thesis or two problem papers on topics relating to experience in internship.

* Syllabuses common.

Scheme of Examination. 4. The scheme of examination shall be as follows:—

Branch I—Home Management.

		Hours	*Marks*
1.	Psychology and Family Organisation.	3	150
2.	Sociology	3	100
3.	Textiles, Clothing and Laundering.	3	100
4.	Home Nursing and Bacteriology.	3	100
5.	Personal and Family Economics.	3	100
6.	Consumer-Buyer Economics.	3	100
7.	Theory of Management.	3	150
8.	Practical in Home Management.	3	100
9.	Thesis	...	300
	Total	...	1,200

Branch II—Institution Management.

		Hours	*Mark*
1.	Psychology ...	3	100
2.	Sociology ...	3	100
3.	Textiles, Clothing and Laundering.	3	100
4.	Business Management ...	3	150
5.	Institution Management ...	3	150
6.	Dieteties ...	3	100
7.	Reports ...	...	200
8.	Thesis ...	...	300
	Total	...	1,200

A candidate who offers Branch I—Home Management shall put in six weeks of practical house-keeping in a cottage situated within the college premises at the end of each year before supplicating for the degree. A candidate for the course in Branch II—Institution Management shall put in a course of three months internship in an approved hospital and another of three months practical work in an approved institution which may be a cafetaria, hostel, canteen, etc. In each of these cases, a certificate of satisfactory completion of practical house-keeping or internship shall be produced.

A candidate must submit detailed reports on the two periods of internship (*a*) in an approved hospital and (*b*) in an approved institution. Each such report shall also be accompanied by a report on the candidate's work by the person who directed his work. Since there are two periods of internship, each report shall carry 100 marks (*i.e.* total 200) and reports shall be judged both on the basis of the one submitted by the candidate as well as the director's report on each candidate's report of work. These reports shall be submitted at the time of the written examination. After completion of the practical training or internship and within six months of passing the written and practical examinations each candidate shall submit a thesis. The thesis shall be valued by the examiners appointed for the purpose.

5. A candidate shall be declared to have passed the written examination if she obtains not less than (i) 40 per cent of the total marks in the written papers (ii) 40 per cent of the practical (with record note-books) and (iii) 40 per cent of the total marks. She shall be declared to have passed in the thesis if she secures not less than 40 per cent of the marks in the thesis.

A candidate who secures not less than 60 per cent in the aggregate shall be placed in the first class. All

other successful candidates shall be placed in the second class.

6. A candidate who fails in the examination shall be permitted to take the examination on a subsequent occasion without further attendance. A candidate whose thesis is not approved shall be required to work for another term under the direction of a supervisor to be approved by the Syndicate and shall submit a revised thesis on a fresh topic approved by the supervisor. No candidate shall be permitted to submit a thesis or appear for the examination on more than three occasions.

7. Candidates who pass the examination in one branch may qualify for the M.Sc. Degree in another branch after one year's course of study in an approved institution.

SYLLABUSES.

M.Sc. Branch I—Home Management.

I. PSYCHOLOGY AND FAMILY ORGANISATION.

A. PSYCHOLOGY.

(Common to M.Sc. Home Management and Institution Management)

1. Some principles of inheritance.

2. Environmental basis of behaviouer, social cultural conditioning; bio-social development in childhood and adolescence.

3. Physical and Psychological needs demanding satisfaction.

4. Habit formation.

5. Intelligence, feelings, emotion.

6. Individual differences due to heredity, environment, matural tion and training.

7. Mental hygiene. The physical, psychological and social factor involved.

8. Maladjustment.

9. Basic processes of adjustment.

10. The nature of a well integrated personality.

Books for Study:

1. General Psychology—G. D. Boaz.
2. An Introduction to Psychology—Gardner Murphy.
3. Psychology—Robert S. Woodworth & Donald G. Marquis.
4. Psychology—Th. Fundamentals of Human Adjustment—Norman L. Munn.
5. Adolescence—Marguerite Malm & Oils G. Jamison.
6. Child Growth and Development—Elizabeth B. Hurlock.
7. Childhood and Adolescence—L. Joseph Stone and Joseph Church.
8. Child Growth and Development—Elizabeth B. Hurlock.
9. Adolescence and Youth—Paul H. Landis.
10. Children in play Therapy—Clark E. Moustakas.
11. An Outline of Abnormal Psycholohy—William Mc Dougal.
12. Child Psychology—Arthur T. Jersild.

B. FAMILY ORGANISATION.

11. The family as a basic institution; family systems, and authority patterns; the joint family in India; the roles of the individual family members, their privileges and responsibilities.

12. Interpersonal relationships (husband-wife; parent-child; other adults-child; siblings; peers) and their satisfactory development.

13. Trends in India which affect family organisation, problems attending adjustments to those changes.

14. The family cycle and management problems inherent in each stage.

15. Family crises and the relationship between family organisation and the ability of the family to make adjustments; types of crises, stages of crises.

II. SOCIOLOGY.

(Common to M.Sc. Home Management and Institution Management).

1. The origin and evolution of society—primitive society—the clan and the tribe. Patriarchal and Matriarchal societies. Kinship, adoption and marriage. Exogamy and endogamy. Caste and race.

2. Society and the individual. The value of individual personality. The democratic basis of society. Importance of the individual in Hindu, Muslim and Christian literature. The individual as isolated unit, versus a specialised individual. The individual in the midst of social relationships, together with social rights and responsibilities as the unit of our thought and discussions. Social harmony and social disruption.

3. Social groups and social institutions. Uses and abuses of social groups. The family, caste and communal groups. Economic groups such as trade unions. Racial groups. The ideal of World Society. Science has made the world a neighbourhood; how can Sociology make it into a Brotherhood? Explanation of the Culture lag theory.

4. The nature of social change and the meaning of social progress. Social change in Hindusim and Islam. Social changes in daily life. Social changes in the city and village. Factors of social change. Social logs, culture contacts and fusion. Culture contacts and friction.

5. Enquiry into Indian social conditions and examination of their effects—such as malnutrition, marriage of the immature, ignorance, disease and squalor.

6. Harmful social customs and their removal. Caste exclusiveness and untouchability. Modification of the rigors of caste by state and social action. Marriage of the immature and marriage practices. The purdah-Eugenic and hygienic practices. Legal disabilities of women in Hindu and Islamic society. The new Hindu Code. Polygamy and polyandry and attempts at their abolition. Limitation of the joint family system. Dowry and inheritance practices. Hindu, Muslim and Christian laws of inheritance.

7. Social survey. Importance of case study. Study of investigations into social conditions conducted in England and America. Social survey in India, regarding poverty and other economic conditions. Budget studies and the standard of living. Comparative study of the standard of their countries. Famine conditions in India. Analytical study of the Indian Census reports.

8. Indian Political Society. Evolution of our present day Government. Structure and functions of our National State and Local Governments. Contributions of the Individual and the family to the State.

9. "Welfare State" and the "Socialistic pattern of Society." India and the world. India's contribution to world peace. Her leadership in South-East Asia.

10. Social attitudes and their development. Social deviants—their causes and remedial measures. Civic conscience—How to create it among the public. Regard for public property.

11. Status of women and children. Women and civic responsibilities. Women as home makers, social workers, teachers, dietitians, institution managers and in other occupational roles.

Books for Study:

Author.		*Name of the book.*	*Publisher.*
1. Weber	...	Essays on Sociology ...	Central Book Depot, Allahabad.
2. Ginsberg	...	Sociology ...	Do.
3. Karl Mannheim		Essays in Sociology and Social Psychology.	Routledge and Kegan Paul.

	Author.	*Name of the book.*	*Publisher.*
4.	Spengler ...	Decline of the West ...	Central Book Depots.
5.	S. C. Dube ...	Indian Village ...	Routledge and Kegan Paul.
6.	Oeser, O. A. & Emery, F. E.	Social Structure and Personality in a City.	Do.
7.	Reez ...	Careers for Women ...	Central Book Depots.
8.	Bertrand Russell	Principles of Social Reconstruction.	Do.
9.	Comfort Alex ...	The Pattern of the future.	Routledge & Kegan Paul.
10.	R. C. Majumdar and Dr.A.P. Pusalkar.	History and Culture of the Indian People.	Munshi Ram-Manohar Lal, Oriental and Foreign Book-sellers and Publishers.
11.	Gerth, Hand & C.Wright Nils.	Character and Social Structures; The Psychology Social Institution.	Routledge & Kegan Paul.
12.	E. S. Altekar ...	The position of women in Hindu Civilization	Munshi Ram-Manohar Lal, Oriental and Foreign Book-sellers & Publishers.
13.	Panikkar ...	Hindu Society at Cross Roads.	Asia Publishing House.
14.	Humayun Kabir	Indian Heritage ...	Asia Pub. House.
15.	Rose Flyod, H.	Social life in Hinduism and Budhism.	Routlegde & Kegan Paul.
16.	Frazer ...	The Golden Bough ...	Asia Publishing House.
17.	J. D. M. Derrett	Hindu Law—Past and Present.	A. Mukherjee and Co., Calcutta.
18.	Hutton, J. H. ...	Caste in India ...	Oxford University Press.

Author.	*Name of the book.*	*Publisher.*
19. Hoebel ...	Man in the Primitive World.	McGraw Hill Book Company, New York.
20. Lowie ...	Primitive Society ...	...
21. Marrett ...	Anthropology ...	Henry Holt & Co., New York, also at R. & T., Washbourne.

III. TEXTILES, CLOTHING AND LAUNDERING.

(Common to M.Sc. Home Management and Institution Management)

This course will consist of discussions and practice in selection of textile fabrics and their identification through simple laboratory tests; teachnical information and laboratory practice to develop good buying habits and to encourage proper use and care of fabrics and clothing. It will also include visits to shops, factories, mills, museums, showing of appropriate films on textiles.

Specific outline of material and processes to be included:—

I. Selection of fabrics for garments.

A. Based on personal characteristics and needs related to:

1. Colour, design, texture of fabric.

B. Based on knowledge of textile fabrics through study of:

1. The nature of cotton, silk, rayon, linen, synthetics, fibre combination and wool;

2. Special finishes of fabrics, e.g., mercerizing, sanforizing, glazing, etc.

3. Kinds of weaves-plain, twill, satin, basket and variations

C. Based on size of budget and wise buying.

D. Based on knowledge of textiles availabe through visits to cloth shops, mills, clothing factories, museums.

II. A review of all stitches in garment construction.

III. Care of garments.

A. General storage and care.

B. Laundering and finishing.

IV. Chemistry of textiles.

A. Simple chemical analysis of various fabrics.

B. Stain removal.

C. Laundering reagents and processes.

V. Care of clothing.

Simple mending—calico, flannel and print patches, darn.

Textiles and Clothing.

Reference Books:

Fibre to Fabric: Potter.

Textiles Fibres: Hess.

Modern Textiles: *Norma Hollen and Jane Saddler.*

Unit Method of Sewing: 2nd Edition—Iowa Home Economic Association.

Clothing Construction: Evelyn A. Mansfield.

Clothing for Children: Hentrietta Thompson and Lucille Rea.

Elementary Textiles: Lee, Julia S. Prentice Hall Company.

Text Books:

Modern Pattern Drafting for Children and Women: Justina Arjun Singh.

A Guide to Household Textiles and Laundry Work: Durga Deulkar.

IV. METHODS OF INVESTIGATION.

(Common to M.Sc. Home Management and Institution Management).

1. Sources of authoritative information; progress reports of current research; the purpose of the review of literature; the use of secondary data.

2. Investigation: Basic elements of scientific method; different methods of approach; the selection of problems for study; clarification of the statement of the problem; development of hypotheses; the function of the hypotheses; delination of the scope of the study; apprisal of the type of data needed.

3. Preparation of a research plan for discussion with administrative or advisory personal; the design for investigation.

4. Methods of collecting data; Surveys and case studies; preparation of schedules and questionnaires; the training of interviewers; experimentation, formulation and perfection of laboratory technique; the preparation of record forms; the value of pretesting the data collection scheme; the responsibility of editing data records.

5. Sampling procedures; sources of bias; methods of reducing bias; methods of evaluating the sample.

6. Tabulation schemes; the preparation of tabular forms; the pretest of the tabular scheme; methods of securing accuracy in tabulation.

7. Methods of descriptive and statistical analysis. Measurement of central tendency, dispersion, relationships, tests of reliability of results.

8. Interpretation; the limitations imposed by the sample.

9. Writing reports of investigations; graphic and tabular presentations; footnotes and bibliographical citations; technical and popular presentation.

V. FAMILY HOUSING.

1. Housing and Civilization: the functional approach to housing; the house as an instrument to implement good family living an investment in citizenship.

2. Housing Policies of India: National and local responsibilities; Central, State and local housing agencies; their operation, co-operative-housing for different income groups; urban, rural and industrial housing; slum clearance and re-housing; housing estates and residential neighbourhoods.

3. Housing Legislation and Administration: Modern tendencies in legislation, legal aspects such as building codes, and others, Housing finance, administrative policies in housing programmes and projects, urban redevelopment, organization of house building industry; financing of estate development, tendency and ownership, estate management.

4. Condition of Housing in Madras and India and the scope of the Housing problem; the social economic and technological background—the population to be housed, the factors which influence it and their possible control; the growth, obsolescense, and rehabi-

litation of cities; the cost of housing and rent, the determining factors; design for low cost housing, housing research—participating institutions and their support.

5. Architecture and Housing construction: Architecture in Housing—Standards for construction—materials for construction, advantages and disadvantages with respect to suitability to design, availability, cost, durability, maintenance, ease of handling, technical know-how and maintenance.

6. Housing and Site planning: The neighbourhood—layout of sites—density dwellings of different size.

7. The House: House plans and their sources—how to read a plan—siting of the house to get the best orientation—planning of the house primarily to suit the basic needs—problems in planning successful multi-purpose rooms—construction features and their contribution to safety, convenience and economy.

8. Municipal Services: availability of sewers, water mains and electric supply—alternate arrangements—roads, street lighting and conservancy.

9. Installations: Provision and maintenance of sanity facilities, adequate plumbing arrangements for water supply—Electric wiring, fittings and appliances for lighting and heating needs for home activities—availability and installation of telephone service.

10. Home Decoration: The selection of suitable and durable furnishings, their arrangement and care—Principles of colour and design, the perpetuation of historic Indian design in art objects and fabrics; problems involved in the harmonious combination of furnishings of diverse historic periods and cultures—the construction of soft furnishings.

11. Maintenance: Up-keep of the home site; landscaping; the vegetable garden; function of plants in reducing heat and glare —periodical repairs—care of the home, its equipment and furnishings.

Practical:

Social surveys related to housing conditions and needs. Reading house plans; the construction of soft furnishings and maintaining vegetable and flower garden areas. Use and care of household appliances.

VI. HOME NURSING AND BACTERIOLOGY.

I. Home Nursing.

II. Bacteriology of the Home.

I. Home Nursing.

1. The Home nurse; choice and preparation of sick-room.
2. Bed and Bed-making.
3. Feeding a patient; invalid diets; bandages.
4. Nursing of sick-children.
5. Ante and post-natal care.
6. The Home Medicine cupboard.
7. Maternity and infant welfare work—Infant mortality and its chief causes. Maternal mortality and its chief causes —Ante natal hygiene—Minor distrurbances during pregnancy—Choices arrangement and preparation of mother's room, linen etc. Preparation for baby.
8. The new born infant and its needs, general management of the baby—bathing, clothing, feeding etc. Breast feeding, artificial feeding. Cow's milk and patent foods, weaning. Diet from six months onwards. Baby's development —abilities, asleep, exercise, habit formation.

II. Bacteriology.

1. General characteristics of moulds, yeasts, bacteria, viruses, phages.
2. Micro-organisms of air.
3. Micro-organisms of soil, with special reference to agriculture.
4. Micro-organism of water—Routine tests carried out to detect faecal contamination.
5. Micro-organisms in milk—total bacterial count, Methylene Blue reduction test and grading of milk.

   Micro-organisms of products.

   Pasteurisation—home-methods.
6. Micro-organisms of meat, fish and eggs.
7. Micro-organisms which spoil fruit and vegetables.
8. Use of micro-organisms in the preparation of fruit—beverage. Preparation of ginger-beer, vinegar, etc.

9. Micro-organisms that bring about decomposition and decay. Compost making.

10. Preservation of food:

   (1) by heat
   (2) by cold
   (3) by dehydration
   (4) by use of salt and sugar
   (5) Use of chemicals.

11. Hygiene of food—food-infection; food-poisoning.

12. Antibiotics and their importance.

Practical:

Methods of sterilization in the laboratory, preparation of media "hanging drop" preparation.

Preparation of cultures.

Staining—Simple stains; gram-staining. "acid-fast" staining.

Total bacterial count.

Methylene blue reduction test for milk.

Preparation of curds, ginger-beer, vinegar, etc.

Preparation of Compost.

Home methods of preservation of foods.

Study of insect-vectors, parasites, and the common pathogenic organisms (Prepared slides).

Excursions to bacteriological laboratories, Maternity centres, hospitals, markets, hotels, bakeries, factories, etc.

VII. THEORY AND PRACTICE OF HOME MANAGEMENT.

Section I—Theory of Management.

1. Defiiniton of management, characteristics of a good manager; the development of managerial ability.

2. History and development of home management; leaders in the field; proceedings of conferences in India and abroad.

3. The decision-making processes; the role of the decision-maker.

4. The bases of value systems; concepts of status and security; development of standards.

5. Factors affecting family goals, short time goals and their relation to long time goals.

6. Development of unity in family objectives, origin of prejudice, technique for fostering co-operation.

7. Types of resources available to families.

8. Concepts of efficiency; some factors affecting efficiency.

9. Some methods of approach to time and energy management, factors underlying choice among them; techniques for improving work methods and habits; problems in accident prevention; survey of investigations in energy consumption and use of time in relation to house-hold activities.

10. The management cottage, its functions, in the development of managerial abilities, organization and supervision of the cottage.

SECTION II—HOME MANAGEMENT (RELATED ART).

(Common to M.Sc. Home Management and Institution Management)

A. Characteristics of good structural design, characteristics of good decorative design.

Classify a number of objects as good or bad design explaining the reasons for the designation.

B. Principle of design:—

1. Harmony—definition, characteristics that may help to build a pleasing and unifying relationship; line or shape, size, texture, ideas colour.

Illustrations of each in a painting, a rug, a printed fabric, a piece of furniture, a building, or a flower arrangement.

2. Emphasis—definition, devices used to effect emphasis; repetition, contradiction, transition.

Confusion or monotony resulting from over-emphasis. Posters, pictures, gardens, centre of attention. Arrangements of objects to illustrate emphasis.

3. Proportion—definition. Importance of scale in design of furnishings and in successful combination of objects. The importance of proportion in providing for margins and placing illustration and slogans on posters.

Effect of proportion as illustrated by examples such as proper size shade for a lamp; effect of small bouquet on large table, short-stemmed flowers in a tall vase picture mounting with proper margins and framing etc.

4. Balance—definition. Formal and informal or assymetrical balance. Ways to make an arrangement balance. Formal and informal schemes for garden plantings.

In formal and informal balance—illustrated by examples such as bouquets, shelf arrangements, etc.

5. Rhythm—definition. The use of repetition. Progression in size and easily connected or continuous lines to achieve rhythmic effects.

Illustrations of the various means of producing rhthmic effects.

C. Colour:

1. Colour systems.
2. The qualities of colour: hue, value, intensity.
3. Schemes for using the colour systems for creating harmonious colour combination: mono-chromatic, analogous complementary, split-complementary, triads.
4. Use of colour to create an illusion of space, warmth coolness-size of an object.
5. The effect of texture on colour. The principle of emphasis and proportion applied to the use of colour.

Illustrations in harmonious colour combinations in flower arrangements; costume; cushions, couch covers and rugs. Walls curtains and rugs; menus.

Plans for decorations suitable for some of the festivals. Posters suitable for demonstrating some Home Science Information.

D. Interior Decoration:

1. The influences that effect the architecture of houses in India Hindu, Persian, Chinese, European, Climatic interior decoration in Indian houses during the last hundred years.
2. The selection of furnishings with regard to suitablilty of their design to their function.
3. The selection of furnishings with regard to their relation to the architecture of the dwelling and to each other.

4. Using colour, texture and line to create atmosphere that is quiet, dignity, cheerfulness, informality, etc.

5. Problems of combining the old and the new.

6. Window treatments and their effects on proportions and functions of the window.

7. Creating a centre of interest in a room, the worship niche, a beautiful hanging vase, etc.

8. Displaying pictures and other objects of act.

9. Arranging furnishings to promote ease of conversation.

10. Arranging furnishings to direct traffic through the house.

11. Making simple furnishings from the materials available in the home.

12. Repainting old furniture.

Practice in making harmonious arrangements either with life-size objects or scale models.

E. Exterior Decoration:

1. Laying out the garden.—
   (*a*) Kitchen garden.
   (*b*) Flower garden.

2. Selecting seeds and plants.—
   (*a*) Heights and shapes.
   (*b*) Colours.
   (*c*) Methods of propagation.

3. Caring for the garden—
   (*a*) Fertilisation—Compost.
   (*b*) Tillage.

4. Caring for the lawn, hedges and trees.

Practical to be extra-curricular.

VIII. PERSONAL AND FAMILY ECONOMICS.

1. The Socio-Economic background of Indian family—human wants—means of satisfaction—scarcity of resources and the problem of choice—scale of preference—demand and its characteristics—system of demand and standard of living.

2. Income and its definitions—real income and nominal income—sources of personal income—earned and unearned—dependence of personal income on national income—computation of national income and personal income—functional distribution of national income—characteristics of income from land, labour, capital and organisation—determinants of national income—India's national income—its distribution by origin.

3. Wages and earnings—differences in earning in different occupations—principles of wage determination in monopoly and competition—collective wage bargaining—methods of wage payments—why wages of women are lower than those of men-equal pay for equal work—primary and subsidiary occupations and incomes for the family.

4. Distribution of family income—the equimarginal principles—concept of opportunity cost—the economics of individualism versus joint family system—the State as sharer of income—effect of different taxes on desire to work and save and ability to work and save.

5. Regularity and adequacy of income—elasticity of demand for income—methods of improving family income—(*a*) personal income (*b*) national incomes—inequalities of income—causes and remedies.

6. The price level—functions of money and kinds of money—the value of money—concept of a general level of prices—causes of fluctuations in price level—effect of changing price level—measure of price level changes—inflation and deflation—price level and cost of living.

7. Factors governing saving—savings as source of national capital—relation between savings and investment—saving facilities and investment opportunities in India—distinction between capital and income—place of loans in family finance—rural indebtedness—remedies—urban workers and indebtedness—how to provide for repayment of loans.

8. Family expenditure—cost of living with reference to time and place—comparative cost of living for a well-to-do farmer, farm labourer, industrial wage earner, college girl, teacher and doctor-cost of living index—planning expenditure—significance of planned economy. The technique of budget construction—practice in the preparation of money budgets and commodity budgets—collection and analysis of family budgets of different income groups to decide the standard and suggest ways of raising the standard—shifts and apportiontments

in different income levels—determination of the cost of maintaining different members of the family group, husband, wife, grown up sons, grown up daughters, younger children, aged parents and others.

Study of advancement expenditure—educational, vocational health, recreation, religion, civil and political betterment expenditure.

9. Account keeping in the household—types of accounts to be maintained—the balance sheet and the audit.

10. Economic insecurity—unemployment—its nature and causes —accidents and industrial diseases—insecurity due to sickness, old age and death—social security schemes in India and the Western countries.

11. The modern population problem in the world and in India—the optimum population—Family planning and other methods of tackling the problem.

12. The State and the Family—the individualistic society and the family—the socialistic society and the family.

13. The Legal aspects of the family—inheritance laws—bequests and Wills in India and elsewhere.

IX. CONSUMER-BUYER ECONOMICS.

1. Characteristics of our economic order—how the consumer makes known his wants—our productive organisation—the place of middlemen—free goods and economic goods and services—wealth —producer's goods and consumer's goods.

2. The meaning of consumption—nature of wants—classification of wants—factors governing wants of individuals and communities.

3. Consumer's choice—factors affecting choice—is our choice rational—an efficient consumer-buyer—education of the consumer.

4. Markets and price determination—what is market—perfect and imperfect markets—types of markets—organisation and functions of market—control of markets—channels of distribution—retail shop—wholesale marketing—chain shops.

The role of prices—price determination—demand and supply—causes of changes in price—causes for changes (*a*) in supply (i) changes

in stock and changes in anticipation regarding future stocks (ii) changes in the cost of producing new stocks (iii) causes and anticipated changes in demand (*b*) in demand (i) physical changes affecting organised needs (ii) fashions and fads (iii) inventions.

Higgling—sales by auction—offers at fixed prices—rationing and price control in war times—resale price maintenance.

5. Consumer's sovereignty and the competitive market—the doctrine of free competition—obstacles to free competitions—imperfect competition and monopolies—effect on consumer welfare—control of monopoly and education of consumer—patents and copy rights—public utility monopolies.

6. Advertising and salesmanship—objects and modes of advertising—the economics of advertising—forms of publicity—what constitutes an offence in advertising.

7. Some retailing services like packaging, delivery, returned goods.

8. Consumer protection—protection in law—against dangerous substances and misrepresentations—guidance in size, weight and quality of goods—Standardisation of consumer goods—quality and quantity labels—the informative label—standards and testing methods.

9. Consumer credit—types of consumer credit—instalment plan-consumer credit as a convenience and as a tool of aggressive salesmanship.

10. Consumer co-operation—the movement in the West and in India—critique of progress and scope for progress.

11. The Business Cycle—measuring and forecasting business cycle-theories of the business cycle—anti-cyclical policies.

12. Policy of taxation—principles of taxation—shifting and incidence of taxation—kinds of taxes—Central, State and Local taxes—effects of different taxes on consumption—taxes on expenditure.

13. Tariffs—how they affect consumers—study of the Indian Tariffs.

14. Government's services to consumers—education and research, music, art, radio, roads, parks, public health and housing.

Branch II—Institutional Management.

I. PSYCHOLOGY.

The same as for M.Sc. Home Management (*vide* A of Section I of Home Management.)

II. SOCIOLOGY.

The same as for M.Sc. Home Management.

III. TEXTILE, CLOTHING AND LAUNDERING

The same as for M.Sc. Home Management.

IV. METHODS OF INVESTIGATION

The same as for M.Sc. Home Management.

V. HOME MANAGEMENT (RELATED ART).

The same as for M.Sc. Home Management (*vide* 2 in Section of VII of Home Management.)

VI. BUSINESS MANAGEMENT

A. Financing the Business.

B. Kinds of Business—Partnership and Joint Stock Company.

C. Office Management.

D. Banking.

E. Filing and Business Correspondence.

F. Account-keeping (Double entry book-keeping).

G. Buying and Selling.

H. Hire Purchase System.

I. Stocks.

J. Prices—Taxes—Profit.

K. Publicity.

L. Balance Sheet and Statement of Accounts.

Books recommended for Study:

1. Business Finance ... F. W. Paish.
2. Business Organization ... S. R. Davar.

3. Business Organization ... B. B. Ghosh.
4. Fundamentals of Business Organization B. V. N. Naidu and H. K. Datta.
5. Business Organization Combination L. H. Haney.

VII. INSTITUTION MANAGEMENT AND DIETETICS.

I. Quantity cookery—

A. Selection of food.
Standards for food selection.

B. Handling and storage of food.

C. Food preparation and service.

(i) Quantity Food Recipes:—Survey of recipes available—Additional needed recipes.

(ii) Proper methods of preparation and cooking sweets and savouries:—Cereals and cereal products. Milk, curds and other milk products; Vegetables including chutneys and pachadis; Fruits; Supplementary foods. Dhals, grams (all pulses; Meat, fish and poultry. Drinking water, coffee, tea and chilled preparations. Sweets.

D. Serving food to large groups.

E. Use of Institution equipment and types of fuel.

F. Calculation of food costs.

II. Diet and Disease—

1. Planning diets according to medical prescription and the food habits of the patient.

2. Calculation of diets for use in Diet Therapy.

3. Fluid, soft, convalescent and post-operative diet.

Preparation of food with one or more specified restrictions e.g. restriction of protein, fat, salt, purines, cholesterols.

4. Diet in relation to Deficiency Diseases:—avitaminoses anaemia, rickets, hypoproteinaemia.

5. Diet in relation to Diseases of the Gastro-Intestinal tract:—Gastrities, gastric and duodenal ulcers; tube feeding for

gastrostomy and jejunostomy patients and unconscious patients; diarrhoea; constipation; high and low residue diets; liver diseases; coeliac disease.

6. Diet in relation to hypertension and cardiac diseases.

7. Diet in relation to diseases of the Kidneys:—Acute and cheronic nephritis; nephrosis; pyelitis and cystittic.

8. Diet in relation to Endocrine Disorders:—Diabetes (including post-operative feeding; hyperinsulinism; hyperthyroidism; obesity; leanness; Addison's disease, hypoparathyroidism, renal rickets).

9. Diet in relation to fevers, acute and prolonged:—typhoid, tuberculosis.

10. Diet in relation to rheumatism and arthritis.

11. Diet in relation to skin diseases, allergy and migraine.

12. Management of diet for Metabolic Balance Studies.

13. Preparation of formula for infant feeding and the study of problems in feeding children in the hospital.

14. Patient check-up and consultation.

III. Hygiene and Sanitation.—

A. Personal hygiene:—Personal cleanliness; bathing; care and management of the hair; clothing; personal toilet habits; hand washing—Handling food—dishes—silverware and utensils. Linens—Handling and care of cleaning materials and equipment—Health examinations and health certificates.

B. Sanitation:—Handling food—Handling equipment—Insect and rodent control: (*a*) flies (*b*) roaches (*c*) ants (*d*) mosquitoes (*e*) rodents. (*f*) others. Insecticides and their use —Storage of poisons—laundering—Storage of laundry and cleaning supplies.

C. Cleaning:—Food Storage areas—Equipment—Cooking areas—Utensils (cooking)—Dishwash and dish storage areas —Serving areas—Entrances and exits—Waste disposal —Buildings—Grounds.

D. Details for cleaning:—Floors—Walls—Ceilings—Furnishings—Entrances and exits—Attached or outside buildings (rest rooms etc.)—Grounds.

E. Cleaning materials:—Soaps and detergents—Abrasives—Chemicals, bleaches etc.—Polishes.

F. Painting, repairs and renovation.

IV. Organization and Management.—

A. Management chart.

B. Delegation of Responsibilities.

C. Planning the work of the Institution.

1. Planning the day's work (time table):—
Food preparation—Cooking—Serving—Cleaning and laundry—Accounts.

2. Planning by the week:—Menus—Food orders—Receiving food—Food handling and storage—Weekly cleaning—Weekly accounts.

3. Planning for special cleaning.

4. Record-keeping and monthly accounts.

5. Planning for special occasions.

6. Planning for the use and care of equipment.

D. Types of Food service—study the difference in organization and management problems:—Hostels—Annapoornas—Hotels—Railroad canteens—Hospitals—Catering—School feeding—Others.

V. Personal Management—

A. Group Psychology and Social relaitonships.

B. Selection of personnel.

C. Training of personnel:—Job analysis—Time and motion economy.

D. Labour—management relations:—Supervision—Delegation of responsibilities—The dignity of labour—Duties of the individual—Development of pride in the job.

Personnel policies:—(*a*) Hours of work (*b*) Salaries (*c*) Sick leave, casual leave and special holidays (*d*) Annual leave (*e*) Insurance, compensation, retirement and other policies, loans and advances (*f*) Breakage, loss, etc. (*g*) Uniforms and clothing (*h*) Personal laundry.

E. Labour laws and organizations.

F. Other legal aspects.

VI. Buying and accounting procedures in Food Service Institutions.—

A. Total budget:—Food budget (%)—Total available for food.

B. Marketing and food selection in relation to cost and food values.

C. Portion control on standard sized receipts.

D. Records:—Indenting—Stores: Food receipts and issues, Cleaning supplies, receipts and issues—Food used or sold—Leftover foods.

E. Cost accounts—Daily, weekly and monthly accounts:—Food labour—Equipment and furnishing—Rent, water, fuel, light and licences—Cleaning supplies—Maintenance—Miscellaneous.

F. Selling price and total income.

G. Inventories.

H. Double-entry Book-keeping.

I. Profit and Loss—Balance-sheets.

VII. The Food Plant.—

A. Facilities for:—Cooking—types of cooking units and baking units; Food storage—dry and cold; Linen storage and laundry; Cleaning supplies; Storage of utensils, equipment, dishes, tableware, etc.; Storage of Insecricides and poisons; Handwashing; Dishwashing; and sterilization; Personnel rest rooms, clothing storage, bathing and changing rooms and latrines.

B. Plan of the areas for:—Food preparation and cooking, location of cooking unit according to type of equipment used—Serving—Dining—Cleaning.

C. Flow of Traffic:—Receiving food—Preparing food for storage—Food storage—Food preparation—Food service—Removing soiled utensils—Dishwashing area—Dish storage area—Traffic of guests—Entrances—Exits—Handwashing and latrines—Wraps and personal belongings—Cashier and control—Supervision.

D. Planning and Equipment:—Materials, construction, installation, operation cost and use of equipment—A Study of equipment layouts and furnishings for group feeding and housing in relation to time and motion economy—Expansion planning and reading blue-prints.

VIII. Delineation of responsibilities of the Dietition or Institution manager and procedures ascertaining authority for discharging duites.

Dietetics.

Books recommended for Study:

	Author.	*Title of Book.*	*Publishers.*
1.	M. G. Wohi ...	Dietotherapy ...	W. B. Saunders Co.
2.	D. Turner ...	Diet Therapy. ...	Chicago University Press—1952.
3.	K. Mitchel and M. C. Bernard.	Food in Health and Disease.	F. A. Davis & Co., 5th Edition—1954.
4.	M. S. Rose ...	A Laboratory Handbook for Dietetics.	Macmillan Co., 4th Edition—1937.
5.	D. Johnson ...	Modern Dietetics ...	G. P. Putnam's Sons —1951.
6.	J. S. McLester and W. J. Darby.	Nutrition and Diet in Health and Disease.	W. B. Saunders Co. Edition—1949.
7.	F. T. Proudfit and C. H. Robinson.	Nutrition and Diet Therapy.	Macmillan Co.—1954.
8.	F. Stern ...	Applied Dietetics ...	Williams Wilkins & Co. 1949—3rd Edition.
9.	M. V. Krause ...	Nutrition and Diet Therapy.	W. B. Saunders Co. —1952.
10.	L. H. Newburgh and F. Mackinnon.	The Practice of Dietetics.	Macmillan Co.—1934.
11.	L. J. Bogert ...	Nutrition and Physical Fitness.	W. B. Saunders Co. 6th Edition—1954.

12. H. S. Witter	..	Hand-Book of Diets for use in Hospitals in India.	Christian Medical College, Vellore—1955.

NUTRITION.

Reference Books:

Standards for Cafeteria Service: Dunning, Frances—Burgess Publishing Company. (1954).

Quantity Cookery, Menu Planning & Cooking for Large Numbers: Nola Treat & Lenore, Richards—Little Brown & Company. (1951).

Robert's Nutrition with Children: Roberts, Lydia J.—University of Chicago Press.

Food Service for Restaurants: Helen Livingstone—McKnight & Mc Knight Publishing Company (1950).

The World's Food: M. K. Bennett—Harper & Brothers (1954).

Cooking How and Why: Halliday and Noble—The University of Chicago Press. (1954).

Laboratory Outline for Nutrition and Dietetics: Brown.—W. M. C. Brown Company. (1952).

Food Preparation Principles and Procedure: Southerland Nelson. 5th Edition—W.M.C. Brown Company (1953).

Nutrition and Diet in Health and Disease: McLester and Darby—W. B. Saunders Company (1952).

Hospital Dietary Department: Bernard—Burgess Publishing Company. (1954).

Laboratory Manual in Dietetics: McLaughlin. Burgess Publishing Company (1953).

Food Composition Table for International Use: Columbia University Press (1949).

Dietary Surveys: *Their Technique and Interpretation*: Columbia University Press (1949).

School Feeding: *Its Contribution to Child Nutrition*: Columbia University Press (1953).

Nutrition in Health and Disease: J. B. Cooper, Barber & Mitchell Lippincottt (1955)

Nutrition and Diet Therapy in Relation to Nursing: Krause—W. B. Saunders Co. (1953).

Meal Management Manual: Hettler Thomas—W. M. C. Brown Company.

Nutrition Childhood, Vols. I, II and III: Macy—Charles O. Thomas.

Psychology: Best and Taylor—The Williams and Wilkins Company.

Vegetable Cookery: A A. Wyn, Ine.

Nutrition: Chaney—Houghton Miffin Company. (5th Ed.).

Basic Cook Book: Heseltine—Houghton Miffin Company.

Hand-Book of Nutrition: Mc Graw Hill Book Company, Inc.

Essentials of Nutrition: 3/Ed. Sherman—The Macmillan Company.

Chem. of Food and Nutrition: Sherman—The Macmillan Company.

Nutrition in Health and Disease: J. B. Lippincott Company.

Practical Book of Food Shopping: J. B. Lippincott Company.

Nutrition: *Bogert.*—W. B. Saunders Company.

Clinic Diet Manual: Mayo.—W. B. Saunders Company.

Foods: Sherman—Columbia University Press.

Cookery: 4th Ed. Lowe—John Wiley and Sons, Inc.

Quantity Food Management II: E. Smith—Burgess Publishing Company.

Handbook of Food Preparation: American Home Economic Association.

Recipes for Serving 100: Hadwin, Sibylla (1953).

Food Service in Institution: West and Wood (1955).

Handbook of Nutrition: American Med. Assoc.—Blakiston Co. (1951).

Food values of portions commonly used: Bowes, Anna de Planter and Church, Charles F.—Annade Planter Bowes—8th Edition.

Sodium Restricted Diets: Davidson, Clifcon, Clifford, Gabuzd and Corinne H. Robinson—National Academy of Sciences.

Diseases of Metabolism: Duncan, G. G.—W. B. Saunders Company.

Clinical Nutrition: Joliffe, Norman, Et. al.—Hoeber (1950).

Robert's Nutrition work with Children: Martin, Ethel Austine—University of Chicago Press.

Therapeutic Nutrition: Pollack, H. and Halpern, S.L.—National Academy of Sciences (1952).

Elimination Diets and Patient's Allergies: Rowe, Albert, H.—Lea and Febiger Publishing Company.

Applied Dietatics: Stern, F.—Williams and Wilkins Company.

Handbook of Diet Therapy: Turner, Dorothea, F.—University of Chicago Press.

Tropical Nutrition and Dietetics: 3rd Edition Nicholls—Bailliere, Tindall and Cox, London.

Nutrition in India: New Edition, Patwardhan, V. N.—Indian journal of Med. Science, Bombay.

The Vitamins in Medicine: Third Edition—Bicknell and Prescott —William Heinemann.

Vitamins in Theory and Practice: Harris, Leslie, J., Cambridges University Press.

Nutrition and Diet Therapy: Proudfit and Robinson, Macmillan Company.

Experimental Cookery: 4th Ed.—Lowe., John Wiley and Sons.

Foods and Principles of Cookery: Fitch and Francis—Prentice *Hall, Inc.*

Food Selection and Preparation: Sweetman and Mackeller, John Wiley and Sons.

The Kitchen in Catering: Walley, J. E., Constable and Company, *London.*

***Text-books*:**

Food for Fifty: Fowler and West, John Wiley and Sons, Inc.

Food Service in Institutions: West and Wood, John Wiley and Sons.

Nutrition and Diet in Health and Disease: Mc Lester and Darby —W. B. Saunders Company (1952).

Nutrition and Physical Fitness: Bogert, L. Jean, W. B. Saunder Company.

Modern Diet and Nutrition: Fleck and Munves—Dell Publishing Company.

The Art and Science of Nutrition: Hawley, E. and Garden G. and Munves, E.—G. B. Mosby Company, 4th Edition.

Modern Dietetics: Johnosn, Doris—G. P. Putnam's Sons.

Nutrition for Health: Kilander, Holager Frederick. McGraw Hill Company, Inc.

Essentials of Nutrition: Sherman, Henry, G. and Landlord, Caroline Sherman—The Macmillan Company.

CHAPTER XLIX

DEGREE OF MASTER OF COMMERCE (M.COM.)

Conditions of Admission to M.Com. Degree.

1. A candidate who has passed the B.Com. Degree Examination of this University or an examination of some other University accepted by the Syndicate as equivalent thereto shall be permitted to appear and qualify for the M.Com. Degree Examination of this University after a course of two academic years in a constituent or an affiliated college of this University.

Course of Study.

2. The course of study shall comprise instruction in the following subjects according to syllabuses and text-books prescribed from time to time:—

1. Economics of Enterprise
2. Business Administration
3. Company Law and Industrial Law
4. International Trade and Foreign Exchange
5. Any two of the following subjects:
   - (i) Accounts and Auditing
   - (ii) Taxes on Incomes (with special reference to Indian Income-tax Law and Practice)
   - (iii) Rural Economics and Co-operation
   - (iv) Public Accounts and Financial Administration
   - (v) Transport
   - (vi) Statistical methods and their application to Commerce
   - (vii) Advanced Currency and Banking
   - (viii) Marketing and Distribution

(ix) Cost Accounts
(x) Insurance and Actuarial Science.

Examinations when held.

3. There shall be two examinations, one at the end of the first year, viz., Part I and the other at the end of the second year, viz., Part II.

Scheme of examination.

4. The Scheme of examination shall be as follows:

Part I

		Hours	*Marks*
1.	Economics of Enterprise	3	175
2.	Business Administration	3	175
3.	Company Law and Industrial Law	3	175
	Part II		
4.	International Trade and Foreign Exchange	3	175
5.	Optional subject I—Paper I	3	175
6.	Optional subject I—Paper II	3	175
7.	Optional subject II—Paper I	3	175
8.	Optional subject II—Paper II	3	175
	Total	...	1400

Eligibility for the Degree.

5. (*a*) A candidate shall be declared qualified for the Degree of Master of Commerce if he passes Part I and Part II of the examination securing the requisite marks.

(*b*) A candidate shall be deemed to have passed Part I of the examination for the Degree, if he obtains not less than 40 per cent of the marks in each of the Papers. A candidate who fails in any subject shall be required to sit for the examination in such subject or division along with Part II of the Examination.

(*c*) A candidate shall be deemed to have passed Part II of the examination if he obtains not less than 40 per cent in each subject of the examination and not less than 45 per cent of the aggregate marks in Parts I and II together.

Classification of successful Candidate.

6. (*a*) Candidates who pass Parts I and II of the examination for the Degree at the first appearance shall be ranked according to the order of merit. There shall be two classes—First and Second.

(*b*) Candidates who secure not less than sixty per cent of the aggregate marks shall be declared to have passed the examination in the First Class, provided they pass Parts I and II of the examination at the first appearance.

(*c*) All other successful candidates shall be declared to have passed the examination in the Second Class.

(*d*) Candidates who obtain 75 per cent of the marks and above in any subject shall be deemed to have passed the subject with distinction, provided they pass Parts I and II of the examination at the first appearance.

Subsequent appearance.

7. (*a*) Candidates who fail in any subject under Part I of the examination shall be required to sit again for the examination in such subject along with Part II of the examination.

(*b*) Candidates who fail in any subject under Part II of the examination shall be required to sit again for the examination in all the subjects they took under Part II. Credit shall be given to the pass obtained in Part I of the examination for such subsequent appearance.

Restriction of appearance.

8. No candidate shall be permitted to take the examination under Part II for the M.Com. Degree on more than three occasions.

Symbolic Representation of Marks.

9. Symbolic representation shall be adopted in declaring the results and a statement of marks shall not be furnished:

Symbol	A	will denote	60 per cent and above of the marks.
,,	B ,,	,,	50 per cent and above but below 60 per cent of the marks.
,,	C ,,	,,	40 per cent and above but below 50 per cent of the marks.
,,	D ,,	,,	Distinction as having obtained 75 per cent and above in any one of the subjects; provided the candidate passes the examination for the Degree at the first appearance.
,,	F ,,	,,	Failure.

B.Com. (Hons.) Degree-holders to appear for M.Com.

10. A candidate who has passed the B.Com. (Hons.) Degree Examination of this University or an examination of another University recognised as equivalent thereto shall be permitted to appear for the M.Com. Degree Examination after putting in a course of study for one year in a constituent or an affiliated college.

Examination once a year.

11. The Examination shall be held once a year.

Syllabuses and books for reference for the various subjects for M.Com. Degree Examination.

(1) Economics of Enterprise

The role of the enterpreneur—Economic decisions of the firm—Firm's costs—Opportunity cost—Production function and least cost combination—returns to (factor) outlay and returns to scale—Theory of consumer behaviour—Pricing under competition, monopoly, duopoly, oligopoly and monopolistic competitions in the shortrun and longrun—Selling costs—Price discrimination—Merits of competition versus imperfect competition—Control of monopoly—The optimum firm—measurement of productivity—Pricing in public utilities—Speculation.

The computation of National income and distribution of natural income, functional and personal—Competitive factor price determination—Effect of commodity monopolies on hired factors—Monopolistic selling and monopolistic buying of factors—Features of Land Labour and Capital as factors of production—Marginal productivity of labour—Causes of unequal earnings—' Equal pay for equal work '—wage systems—causes and remedies for industrial unrest—Voluntary and compulsory approach to industrial peace—Trade unions and wagss—Minimum wage legislation—Social security—Nature and functione of capital—Pricing of Capital goods—Interest rate and investment—Interest theories—Structure of interest rates—Rent of land and premises—Quasi rent—profit as a distributive share—Risk, uncertainty and profit.

Business Cycles—Features—theories : Monetary theory—Over investment theories—Under consumption theories—Psychological theories—Harvest theories—Recent developments :—Contributions of Keynes and Hicks—Theory of full employment, under-employment and overfull employment—Measures for full employment—Problems of under-developed economies—Planning techniques—India's plans.

Bain : Pricing, Distribution and Employment—World Press

Chamberlain : Monopolistic competition—O.U.P.

Readings in Income Distribution—American Economic Association.

Readings in Price Theory—American Economic Associatiou.

Knight—Risk, uncertainty and profit—London School of Economics.

Andrews: Manufacturing Business.
Meade: Economic Analysis and Policy.
Philips Brown: A course in Applied Economics—Pitman.
Bye and Hewitt: Applied Economics—World Press.
Haberler: Prosperity and Depression—United Nations.
Keynes: General Theory of Employment, Interest and Money.
Hicks: The Trade Cycle—O.U.P.
Lewis: Principles of Planning—Allen and Unwin.
Tilak Gosh: The Technique of Planning—World Press.
Lewis: Theory of Economic Growth—Allen and Unwin.
Nurkse: Capital formation in under-developed countries.

(ii) Business Administration

A. Business Organisation and Business Policy :

The special administrative and economic problems of large scale organisation—Delegation of functions—Allocation of responsibility—The machinery of control—Scientific management—Recruitment, promotion and retirement of staff—Location, arrangement and construction of industrial plants—specialised organisations for different purposes—Control of stock—Control of production—Standardisation—quality control—principles of cost finding—Equipment policies—Budgetary control—Job evaluation—Measurement of efficiency—Industrial relations—Market research—public relations.

B. Marketing and Distribution :

The cost of distribution—Channels and methods of distribution—Advertising and salesmanship—resale price maintenance.

C. Business Finance :

Risks of finance—transferable and non-transferable—Corporation finance—The stock exchange and the new issue market—Special financial institutions—Industrial finance in India.

References :

1. Principles of Industrial Organisation—Kimbal and Kimbal.
2. Management Survey—Hooper.
3. Large Scale Organisation—Milward (Ed.)
4. Administrative Behaviour—H. A. Simon.
5. Modern Business Problem—Arnod Plant.

6. Resale Price Maintenance—Yamey.
7. Business Finance—Paish.
8. Industrial Finance in India—Basu.
9. Administration of Marketing and Selling—Whitehead.
10. Management—Its nature and significance—Brech.
11. Personnel Management—Northcott.
12. Practical salesmanship—Davar.
13. Higher Control in Management—Rose.
14. The making of Scientific Management—Urwick (3 Volumes)

(iii) Company Law and Industrial Law

(a) Company law

(Detailed knowledge of Companies Act, 1956 and prescribed forms)

Introductory

Persons in law :

Natural and Fictious—Co-operative Status—Company—Distinction from partnership—Kinds of companies—Chartered, Statutory and Registered companies—Public and private companies—Conversion of private into public company—Unlimited companies—Companies limited by shares by guarantee—Holding and subsidiary companies—Other companies regulated by special Acts—Foreign companies—unregistered companies.

Minimum and Maximum Membership :

Reduction below legal minimum—Illegal Association.

Formation :

Stages in formation of a company : Preliminary agreements and promoters—Documents to be filed—Provisions relating to Memorandum of Association and Articles of Association registration—Certificate of incorporation—effects.

Alteration of Memorandum of Association and Articles of Association:

Effect—Registration of unlimited company as a limited company—power of companies to dispense with 'Limited' —Penalty for improper use of 'Limited'.

Commencement of Business :

Restrictions—Related provisions.

Prospectus :

Dating form and contents—Registration—Purpose of prospectus—Meaning of issue—Prospectus by implication—Statement in lieu of prospectus—Waiver clause—Civil and Criminal Liability in respect of prospectus—Penalty for fraudment inducement to invest money.

Membership :

Test—Distinction between members and share-holders—Persons that may or cannot be members—Modes of becoming a member and ceasing to be a member—Provisions relating to membership be allotment, irregular allotment—Transfer—Transmission etc.—Duties, liabilities and right of members—Dividends Register and Index of members—Rectification.

Capital :

Share capital—Kinds of capital—Capital clause in Memorandum of Association—Alteration by way of increase, Diminution: reduction and reorganisation—Procedure.

Shares :

Definition—Nature—Certificate of shares—New issues—Further issues—Issue at a premium—Discount—Kinds of Shares—Commissions—Share warrants—Penalty for impersonation—Calls—Lien, forfeiture, sale—Surrender of shares—Reserve Fund—Reserve capital—Restrictions on company's purchases of its own shares—Purchase by company of shares of other companies.

Company's Contracts :

Limited capacity—Doctrine of Ultra Vires—Form—Deeds—Official seal—Termination of existing contracts—Borrowing powers—Implied powers of trading companies—Methods—Issue of debentures—Debenture Trust Deed—Debenture stock—Rights of debenture holders—Register and Index.

Securities :

Charges—Registration—Certificate—Related Provisions—Payment of interest out of capital.

The Companies Executive :

Management and Administration—Working of Companies—Necessity for authorised executive.

Forms of Management :

Registered office—Overall managerial remuneration.

Board of Directors :

Appointment, qualification, disqualification removal, age of retirement, remuneration of directors —Number of directorship—Disclosure of interests—Legal position—Unlimited liability—Compensation for loss of office.

Managing Directors :

Managers :

Restriction of number of companies—Remuneration.

Managing Agents :

Appointment and term of office—Restrictions on number of companies—Termination—Compensation for loss of office—Restrictions on changes in constitution—Remuneration—powers—Restrictions—Liability.

Secretaries and Treasurers :

Appointment—Remuneration—Restrictions—Restriction on number of companies—Legal position.

Secretary :

Official position—Duties, rights, liability—Advisory commission—appointment—Powers—Immunity.

Auditors :

Appointment—Rights—Duties—Powers—Remuneration—Liabilities.

Meetings :

Need for—Kinds—Provisions relating to statutory meeting and statutory report—Annual General Meeting—Extraordinary general meeting, Notice quorum, Chairman, Proxies voting, minutes.

Resolutions :

Kinds—Circulation—Special notice, etc.

Service of documents on company, Registrar, Members—Authentication of documents and proceedings.

Information about the working of a company :

Publication of A/Cs.—Statutory books—Board's report—Annual Accounts and Balance Sheet, Profit and Loss Account—Auditor's report—Provisions relating to Auditors.

Government Control :

Through Registrars—Compulsory Registration of documents, returns, etc.—By calling for information—By investigation by exercise of other powers conferred by the Act.

Prevention of oppression aud Mismanagement :

Exercise of powers granted to count conferred on the Central Government.

Miscellaneous Provisions :

Reference to arbitration—compromises or arrangements with creditors or members—Reconstruction and Amlagamation—Receivers—Employees' securities, etc.

Liquidation or Winding up of Companies :

Meaning—Dissolution—*Defunct Companies*—and circumstances—Co-operative bodies that may be wound up under the Act—*Modes—Compulsory*—By order of court—Circumstances—petition—Commencement—powers of court—Winding up order—Effects—Dissolution.

Voluntary Winding up :

Object—Circumstances—Kinds — Members and creditors—Distinction—Resolution — Commencement — Effects — Special and common provisions—*Winding up subject to Courts' Supervision* : Grounds—Procedure—Advantages and effects—Consequences of winding up in general as to shareholders, creditors officers—Servants—Dispositions by the company, costs and documents, books and papers—Winding up of unregistered companies—provisions relating to official liquidation.

Forms etc.—Schedules.

Table A :

Memorandum and Articles of Association of Company limited by shares—companies limited by guarantee not having a share capital and having a share capital—unlimited companies.

Statement to be published by certain companies and societies—Contracts of prospectus—Matters to be specified and reports to be set out.

Form of statement in lieu of prospectus with reports to be set out—Statement in lieu to be filed by a private company on becoming a public company together with reports to be set out contents and form of Annual Returns—Forms of certificates accompanying them.

Method of preparing Balance Sheets and Profit and Loss account—Form of Balance Sheet—Form of declaration to be made by firms private companies and other bodies corporate acting as managing agents or Secretaries and Treasurers.

Form of Transfer and shares—Notices of meetings—Drawing up minutes of meetings—Forms of Proxy—Form of debentures—Deed of Mortgage or charge—Application requisitioning holding of extra-ordinary general meetings.

Declaration regarding satisfaction of requirements for registration of a company, by directors consenting to act as such and of having taken up the qualification shares.

(b) Industrial Law

The Indian Trade Unions Act, 1926 :

Definition—Registration of Trade Unions—Certificate of Registration—Incorporation—Cancellation of Registration—Rights and liabilities—Privileges, immunity from civil and criminal liability—trade union fund—Separate fund for political purposes—Amalgamation of trade Unions—Unfair practices—Penalties—Dissolution.

The Workmen's Compensation Act, 1923 *and Employers' Liability Act*, 1938 :

Object—Definitions—Employers' liability for compensation—Meaning of accident—When employer not liable—Calculation of half-monthly payment—Deposit and distribution of compensation—Notice and claim—Medical examination—Remedies of Employer against stranger—Commissioner—Tables.

The Payment of Wages Act, 1936 :

Scope—Definitions—Responsibility for payment of wages—Wage periods—permissible deductions—claims for wrongful deductions—Fines—Penalties

The Minimum Wages Act, 1948 :

Object—Interpretation—Minimum rates of wages—Fixing and procedure—Wages in Kind—Advisory committees and Advisory Boards—Registers and Records — Inspectors—Claims—Penalties—Exemptions and exceptions—schedules.

The Factories Act, 1948 :

Object—Definitions—Licence for and Registration of Factories—Inspecting staff—Certifying surgeons—Provisions relating to health

safety and welfare—Working houses for adults—employment of young persons, women—Leave with wages—special provisions—penalties and procedure—offences by workers—Cognizance of offences under the Act—Power of court—Limitation of prosecutions—Appeals—Supplemental provisions.

The Employees State Insurance Act, 1948 :

Social Insurance—Scope of Act—Administration of Insurance Scheme—Employees State InsuranceCorporation—Standing Committee—Medical Benefit Council—Prinicipal officers and staff—Employees State Insurance Fund—Contribution—Repayment of benefit improperly received—disqualification—Liability of employers Adjudication of Disputes of employers and claims—Transitory provisions—Miscellaneous schedules.

ndustrial Disputes Act, 1947 :

Definitions—Authorities under the Act—Works Committee—conciliation officers—Boards conciliation—Boards courts of inquiry—Industrial Tribunals—Reference of disputes—procedure—powers of authorities—Settlements and awards—Commencement and conclusion of proceedings—strikes and lock-outs—lay-off and retrenchment—re-employment—Penalties—Miscellaneous.

Industrial Disputes (Appellate Tribunal) Act 1950 :

Labour Appellate Tribunal—Constitution—Functions.

The Indian Arbitraticn Act, 1940 :

Meaning of Arbitration—Reference or submission to Arbitration—Who may refer and what may be referred to arbitration—Modes and provisions relating thereto—powers, duties and disqualification of arbitrators—Umpire—The award—Court's powers—Appeals.

Books Recommended :

Government of India	...	Companies Act, 1956.
K. Venkat Rao	...	do
K. M. Gosh	...	do
Ramaswamy and Basu	...	do
V. K. John and Rao	...	do
A. N. Iyer	...	do

Government of India—Laymans Guide to Company Law.

(iv) International Trade and Foreign Exchange.

PART A.

Economics of International Trade :

The basis of international trade—international and interregional trade—the doctrine of comparative costs—gain from trade—factors governing—Reciprocal demand—Marshellian curves—trade under increasing cost and decreasing cost conditions—opportunity cost approach—the terms of trade—its measurement and uses—factor price equalisation—doctrine of non-competing groups—arguments for free trade and protection—the structure of tariff—the balance of trade and balance of payments—disturbances to the balance of payments—measures for adjustment :—adjustment under gold standard and free exchanges—adjustment under exchange control—capital movements—tariffs and import restrictions—bilatralism—multilaterilism—international trade and economic development.

Foreign Exchange :

Gold points—purchasing power parity—Movements in exchange rates—exchange quotations—forward exchange—exchange equalisation account—Exchange Control.

PART B.

Descriptive International Trade :

International mechanism in the 19th century—international currency experience in the interwar period—international economic problems after II World War—the European Recovery Programmes–the Marshal Aid—the Colombo Plan—I.M.F. and I.B.R.D.—Customs unions—international commodity agreements—State trading—Recent trends in India's foreign trade, balance of payments and foreign exchange—India's commercial policy—Exchange control in India.

PART C.

The practice of foreign trade:

Contract between buyer and seller in international trade—the export and import shipment procedure and problems—the bill of Landing, the invoice and certificates—freight for warders—customs procedure in general—marine insurance—packing for overseas trade—Financing export and import shipments—risks in trade and then coverage carriage of goods gain—international communications. (These topics will be studied with reference to U.K., U.S.A. and India.)

The question paper will consist of 3 parts, one part dealing with Economics of International Trade, the second part with descriptive

International Trade and the third part with the Practice of Foreign Trade.

Books for reference:

1. Haberler: Theory of International Trade.
2. Viner: Studies in the theory of International Trade.
3. Ellsworth: International Economy.
4. Meade: Balance of Payments.
5. Readings in the Theory of International Trade.
6. League of Nations: International Currency Experience
7. Tarshis: International Economics.
8. Viner: International Trade & Economic Development.
9. Krause: International Economy.
10. Rosenthal: Techniques of International Trade.
11. Syrett: Practice of Foreign Trade.
12. Evitt: Foreign Exchange.

(*a*) Accounting and auditing (Two Papers)

Accounts:

Accounting systems adopted by different Commercial enterprises and non-trading institutions—Manufacturing, Trading, Profit and Loss and Profit and Loss appropriation Accounts, and Balance Sheet—Preparation of Accounts from incompelete records—Accounts of partnership firms—Accounts of joint stock companies—formation—Amalgamation—Absorption—Reduction—Reconstruction and liquidation—Departmental and Branch Accounts.

Accounts of Banking, Insurance, Holding and subsidiary companies—Bankruptcy accounts—Outlines of statements for income-tax purposes—Royalty and Hire and Instalment Purchase Accounts—Accounts of professional persons.

Cost Accounts—Pricing of materials—on cost—Methods of alloation—Elements of Factory Organisation.

Budgetary Control—Financial statements, their use and interpretation—Accounting ratios—Management Accounting

Auditing:

Objects and necessity—Internal check—Vouching—Cash and other transactions—Verification and valuation of Assets—Liabilities regular

and contingent—Audit for different purposes and of various types of institutions—Reserves—Divisible profits and dividends—Audit Report —Rights, duties and Liabilities of Auditors' Investigation—Certifying of Average profits.

Note:—Paper I will be on Accounting and Paper II will be on Auditing.

Books Recommended:

1.	Book-Keeping & Accounts	...	Spicer & Pegler.
2.	Accountancy	...	Pickles.
3.	Advanced Accounting	...	J. R. Batliboi.
4.	Advanced Accounts	...	R. N. Carter.
5.	Balance Sheets—How to read and understand them	...	Philip Torey.
6.	Accountants hand-book	...	Paton.
7.	Advanced Accounting	...	Yorston, Smith & Brown.
8.	Accountancy	...	Dicksee.
9.	Cost accounting & Costing methods	...	Wheldon
10.	Cost Accounting	...	Bigg.
11.	Auditing	...	Dicksee.
12.	Practical Auditing	...	Spicer & Pegler.
13.	Principles of Auditing	...	F. R. Depaula.
14.	Internal Auditing	...	Brible.
15.	Lectures on Auditing	...	J. R. Batliboi.

(b) Taxes on Incomes.

Income-tax Law and Practice.

1. Theory and General principles of direct taxation—Nature and incidence of Income-tax, super-tax, corporation tax and surcharge—general consideration of Excess profits tax, Business Profits tax, Wealth tax, Expenditure tax, Estate Duty and Agricultural Income-tax.

2. General principles of taxation of income in U.K., Commonwealth countries, U. S. A. and Japan broadly compared.

3. Public finance with reference to theory of taxation on Income in India—Constitution of India—Relevant provisions thereof empowering levy of taxes in Income—Importance of Income-tax in Indian tax

structure and division of Incomte-tax proceeds between the Centre and the States.

4. General principles of construction of taxing Acts—applicability of English decisions.

5. Brief History of Income-tax in India—Income-tax Acts of 1886 and 1918—Recommendations of various taxation Enquiry Committees and Commissions.

6. *Indian Income-tax Act*, 1922:—Scheme of the Act in broad outline—its progressive nature—chargeability under the Act—Classes of Income and classes of assessees—Status of assessees—Importance of Residential status—Total Income—Total world income—Incomes totally exempt including agricultural income—Exemptions for purposes of (i) rate (ii) Income-tax and (iii) supertax—Heads of Income—computation of Income under the various heads—Relief and rebates—method of accounting—Assessment procedure in normal and special cases—power to call for information—searches—seizure of books and documents—onus of proof—estoppel and resjudicate—determination of taxes in special cases—income of one person treated as income of another—deduction of tax at source—taxation at source—advance tax—provisional assessment—regular assessment—registered and unregistered firms—carry forward of losses—Assessment of companies in which public are not substantially interested—penalties for concealment of Income—Income escaping assessment—rectification of mistakes—appeals (first and second)-revision—reference to High Court and appeal to Supreme Court—Jurisdiction of courts in Income-tax matters-Liability in special cases—Provident and superannuation Funds—Recovery of tax etc.—refunds—double taxation relief—unilateral relief Limitation—Schedule Rules for the Computation of the profits and gains of Insurance business.

Miscellaneous:—Place of assessment—offences under the Act—Composition—Secrecy provisions of the Act—power to make rules—tax-clearence and verification certificates—attendance of assessees—appearances by authorised representatives—service of notices—emergency provisions when Finance Act has not been passed—Income-Tax Rules.

7. Machinery of Income-tax administration, Income-tax Authorities—Appellate Tribunal—Their appointments duties, function and powers.

8. A general knowledge of—

(1) Payment of taxes (Transfer of property) Act, 1949.

(2) Gandhi National Memorial Fund Donations (Companies) Act, 1948.

(3) Administration of Evacuee Property Act, 1950.

(4) The Opium and Revenue Laws (extention of application, Act, 1950.)

(5) The Repealing and Amending Act, 1950.

(6) The Taxation of Income (Investigation Commission) Act, 1947.

(7) The Central Board of Revenue Act, 1924.

(8) The Application of Central Board of Revenue Act, 1924 to all Merged States.

(9) (i) Taxation Laws (extention to Merged States & Amendment) Act, 1949.

(ii) The Taxation Laws (extension to Jammu and Kashmir) Act, 1954.

(10) The Madhya Bharat Taxes on Income (Valuation) Act,1954

(11) The Government Trading Taxation Act, 1926.

(12) The Governor-General's Salary (Exemption from Taxation) Act, 1949.

(13) Voluntary Surrender of Salaries (Exemption from Taxation) Act, 1950.

Practical Training.

The candidate should undergo practical training under the guidance of a Chartered Accountant experienced in Income-tax audit in examining accounts for the purposes of income-tax, preparing trading and Profit and Loss statements and Balance Sheets certified for income-tax purposes, preparing returns of income for income-tax under the Income-tax Act with all enclosures thereto including depreciation statements etc., computation of total income and tax payable by different classes of assessees, in preparing refund applications, appeals, reviews, references, wealth statements and applications for extension of time for various purposes.

The training will include lectures by a Chartered Accountant on the following connected subjects:

Systems of accounting with particular reference to various systems of accounting in South India—difference between general audit and audit for income-tax purposes—scope of Section 13—power of Income-tax Officer to reject accounts—assessment of insurance business—importance of genuiness of vouchers for all expenses—principles to be followed in

preparing claims for refund appeals, reviews references and other applications—Role of an Accountant in Income-tax proceedings—authorised representative—their functions and responsibilities.

Note.—The first paper will be on "General Principles on Taxation on Income and the Indian Income-tax Law" and the second paper on "Income-tax Procedure and Practice."

Books Recommended:

1. Income-tax Mannual (Issued by the Government of India) 2 parts.
2. Indian Income-tax Act—A. C. Sampath Iyengar, 2 Vols.
3. Law of Income-tax in India by V. S. Sundaram.
4. Law and Practice of Income-tax—Jamshedji B. Janga and N. A. Palkhivala.
5. Indian Income-tax Act by A. N. Aiyar.
6. Indian Income-tax Act by B. R Jain.
7. Indian Income-tax Act & E. P. T. by R. K. Dalal & R.P. Dalal
8. Excess Profits Tax by A. N. Aiyar.

Books for Reference:

1. Indian Accounts and Income-tax by Dulip Singh.
2. Indian Laws and Income-tax by Dulip Singh.
3. Income-tax Reports by A. N. Aiyar—Volumes I to XX.
4. Income-tax Cases by P. R. Srinivasan—Vols. I to X.
5. Income-tax Cases by K. Srinivasan (up-to-date).
6. Income-tax and Excess Profits Tax Digest by A. N. Aiyar.
7. Indian Income-tax Act by V. Rajagopala Iyengar.
8. Law and Practice of Income-tax by Viswanatha Sastry.
9. Report of the Income-tax Investigation Commission.
10. Taxation Laws by S. V. Iyer.
11. Taxation—Volumes I to up-to-date.
12. Tax Cases English—Volumes 1 to up-to-date.
13. The Accountant—Annotated Tax Cases (up-to-date.)
14. A Digest and Index to Tax cases by E. R. Harrison, latest edition, 1949.

15. Ceylon Income-tax Manual
16. Law of Income-tax—E. M. Koustom with supplement.
17. Excess Profits Tax Act by Cyril L. King & Michael Moore (Butterworth & Co. London).
18. Income-tax United Kingdom by Selingman.
19 Income-tax Practice by Murray & Carter.
20. Income-tax Practice by Sneking.
21. Income-tax Law—Prett and Redman.
22. Income-tax Codification Committee Reports.
23. Income-taxes in Commonwealth—Volumes I and II (published by Her Majesty's Stationary Office.)
24. Income-tax for Laymen (Issued by the Government of India).
25. Kaldor N.—Report on Tax Reform in India.
26. Kaldor N.—Expenditure Tax
27. Report of Taxation Enquiry Commission, 1953-54.
28. Hicks and Rostas—Taxation on War Wealth.
29. Groves—Postwar Taxation and Economic Progress.
30. Simon's Income-tax—Vols. I to V.

(c) Rural Economics and co-operation

Paper I.

Rural Economics.

I. Introduction.

Definition—science which deals with the business aspect of rural life—scope and method of study—differences between rural and urban conditions—difficulties in applying general principles of industrial economics to agriculture and farm life.

Evolution of agriculture—man as hunter—man as herdsman—the superiority of agricultural over pastrol life—agriculture and family life—agriculture and private property—agriculture and social organisation—communal—subsistance—agriculture—individual subsistance agriculture—individual commercial agriculture—capitalistic commercial agriculture—collectivised agriculture—co-operative farming.

Importance of agriculture—agrocultural *versus* industrial economics agriculture, on industry of small units—lack of specialisation in

farming—conditions of production more—inelastic comparative ineffectiveness of competition—lack of combination—economic lag in agricultural production—peculiar nature of financial requiree-ments.

History of Indian agriculture—transition from subsistance to commercial farming—its causes and effects—increasing dependence of Indian agriculture on world conditions—increasing instabily of agricultural unions—need for organisation.

II. Factors of Agricultural Production.

Land.—Definition of production—what is meant by land in production—agricultural wealth of India—land and its products—flora and fauna—the physical features of the land—climate—the monsoon—geological composition—classification of soils—soil and crop—fertility—conservation of soil resources—soil erosion and its prevention—urilisation of land crop and pasture—forest productivity per acre—law of diminishing returns—crop pests and their control—mixed farming and rotation of crops—dry farming—irrigatoin—the major irrigation works in India—Government policy—major and minor irrigation works—irrigation problems—possibilities of extending the area of arable land—land reclamation—land colonisation—intensive and extensive cultivation.

Labour.—What is meant by labour in production—peculiarities of agricultural labour—farm labour in India—population and its relation to Indian agriculture—low yield per worker—its causes and remedies. The problem of the landless labourers. Need for supplementing the income of the farm worker—subsidiary and cottage industries—hand-loom weaving—its present position—the problem of the weaver—how to organise the weavers with reference to their needs in production finance and marketing—dairy industry. Its present position and possibilities—co-operative dairying—other rural industries.

Capital.—What is capital—productivity of capital—manure—manurial needs of the soil—the ingredients of plant (food—cattle manure—composts—green manure—leguminous plants)—chemical fertilisers—organised supply of manure—co-operative purchase and distribution of manure—implements—use of improved implements—possibilities of mechanizing agricultural industry—use of power-Hydro-electric power—seed—use of improved seed need for organised distribution of letter seed—co-operative schemes.

Live-stock.—The cattle welath of India—problems of proper feeding and better breeding—the importance of cattle rearing—cattle

diseases and their control—the evolution of dual purpose—breed for milching and draught—cattle insurance—cattle breedings—co-operative societies—cattle rearing as an industry—need for collabor-ration between the agricultural, co-operative and veterinary depart-ments.

The problems of agricultural finance—its peculiarities—Short medium and long term finance—need for specialised agencies, indi-vidual institutional and state help—money lenders and indigenous bankers—Joint Stock Banks—Co-operative societies and land mortgage banks—Government loans Reserve Bank and agricultural credits—rural indebtedness—its causes, extent and remedies.

Organisation.—Need for setting agriculture on an organised footing. Fragmentation and sub-division of holdings. Their causes, extent, and remedy—consolidation—by compulsion—legislative enactments for consolidation—voluntary consolidation—co-operative societies for consolidation of holdings—their scope in the province.

Several land systems—land tenures in India—Zaminadri—ryot wari and Mhalwari tenures—peasant proprietorship and tenancy holding—large scale and small scale farming—joint farming—farm equipment—Scientific management.

Marketing and Transport.—Problems of buying and selling—marketing and problem in production—creation of farm, space and time utilities—assembly, processing, grading, transporting, storing and financing and distribution and scale of agricultural commodities—the present marketing methods—fairs—middlemen—private merchandizing disadvantages—orderly marketing—co-operative marketing societies—the extent of their progress and activities in the province—superiority of the co-operative method—transport faci-lities—road, air and river transport—freight rates—Weights and measures—market survey and market intelligence.

III. State and Agriculture.

Research.—demonstration—propaganda—development depart-ments—their evolution and policy—organisation of agricultural research—economic councils and marketing boards—the state and agricultural prices—state and land policy-land revenue administra-tion and land settlement.

IV. Rural and Social Problems.

Rural social needs.—the village—the village administration—village panchayats—their history and present function—reconstruc-

tion of rural life—experiments in rural reconstruction—how to increase the standard of life of villager—rural sanitation and rural hygiene—education of the farm youth—peasant leagues and rural clubs—rural welfare centres—co-operation and rural welfare.

A short course of lectures on "Rural Health and Sanitation" by an Officer of the Public Health Department, on "Panchayats and Village Administration" by an Officer of the Local Self-Government Department, on "Land Revenue Administration and Land Settlement" by a Revenue Official on "Agriculture and Livestock' by a Veterinary Officer and on "Land Improvement" by an Officer of the Agricultural Department may also be arranged in consultation with the Departments concerned.

Books of Study:

1 Principles of Rural Economics by Carver.
2 Rural Economy of India by R. Mukerjee.
3 Indian Agriculture by Howard.
4 A Primer of Agricultural Economics by Sir Henry Reid.
5 Agricultural Progress in Western India by Keatings.
6 The Punjab Peasant in Prosperity and Debt by M.L. Darling.
7 The Wealth and Welfare of the Punjab by Calvert.
8 Land Tenure in British India by Baden Powell.
9 The Agricultural Commission Report.
10 Rural Economics of Indian Agriculture by Dr. B.V.N. Naidu.

Paper II.

Theory, History and Practice of Co-operation.

I. Principles of Co-operation.

Definition of "Co-operation"—principles—diffrentiation from other forms of associations and organisations—features of a Co-operative Society—different forms of Co-operatives—structure of Co-operative organisation—unitary and federal—problems related to limited and un-limited liability—single and multipurpose—compulsion in Co-operation—politics and Co-operation—Co-operation and State aid.

II. History of Co-operation.

A general study of the origin and growth of the Co-operative movement (a) *in foreign countries* with special reference to (1) credit movement in Germany, Italy and France (2) Mortgage banks in Germany, France, U.S.A., Canada and Australia (3) Consumers

movement in Great Britain (4) Marketing Societies in U.S.A. and Canada (5) Producers' Societies in France (6) Dairy Societies in Denmark and Ireland (7) Labour and Land Reclamation Societies in Italy (8) Industrial Co-operation in Japan and China (9) Farming in Russia and China, (10) Insurance Societies in France, (11) Co-operative Communities in Palestine and (12) Housing in (*a*) Scandinavian Countries, (*b*) India from 1904 till date.

III. Practice of Co-operation.

Classification of societies—Characteristic features—constitution and general working with special reference to objects, membership, funds, management methods of business, distribution of profits and supervision with reference to the different types of Co-operative institutions.

1. *Co-operative credit movement.*—The Indian rural credit problems—Co-operative credit institutions—(1) Rural Credit Societies (2) Agricultural Banks (3) Urban Banks, (4) Central Banks and (5) State Co-operative Banks, (6) Primary Land Mortgaae Banks and Central Land Mortgage Banks—Reserve Banks relation to the Co-operative credit movement—Rural Credit survey—fundings and recommendations—lines of re-organisation of the Co-operative credit structure.

II. Non-credit Co-operations.—(*a*) Consumers' Co-operative Stores—Retail and wholesales stores—principles, methods of business and interrelatives. (*b*) Co-operative Housing: Normal agencies —housing schemes—type of housing societies—State aids—nature—terms and procedure. (*c*) Co-operative canteens and restaurants. (*d*) Co-operative producers' Societies: (1) Marketing Societies and ware-housing problems and Co-operative solutions—structure—policies—functions, financial resources and operations—regulated markets-Licensed warehouses Act-All-India Rural Credit Survey's findings and recommendations—lines of reorganization. (2) Weavers Co-operative Societies. (3) Milk supply Societies and Unions. (4) Industrial Co-operatives. (5) Farming Societies—types of Co-operative farming—land Colorization societies—land reclamation, irrigation and agricultural demonstration societies. (6) Other kinds: Co-operative Insurance —better living—health—resettlement and rehabitation, cattle breeding and salvage societies.

III. Co-operative Education and propaganda.—Importance—training of officers and non-official employees—panchayadars and members—Co-operative Unions—training institutes—University Course—Reserve Bank Scheme.

IV. Co-operative Department—Phases of evolution till 1919 and later—officers at different levels—their duties and powers—relae tions with Government and Public.

V. Co-operative Audit.—Audit of Co-operative Society: Stat-controlled audit—registrar's responsibility—scope of section 37 of the Madras Co-operative Societies Act VI of 1932—difference between audit of a co-operative society and the audit of a Joint stock Company—various agencies employed by the Registrar for audit—Government staff—audit unions—Audit schemes—registered accountants—books to be maintaned by co-operative societies—Rule V of the Rules—brief description of the books—interim audit—final audit—annual statement—Rule VII of the rules—audit certificate issued by the Registrar—points to be studied before commencing Audit—examination of by-laws—instruction of the Registrar—difference between inspection, supervision and audit.

VI. Co-operation in Planned Economy.—Effectof State policies, controls and Legislation and various types of societies' advantages and disadvantages—scope and limits—change in form—need to preserve essence self regulation versus State regulation within State-regulation—co-operation not part of private sector public co-operative agency—co-operation in Five Year Plan and progress in the planning period.

VII. Co-operativo Law.—(A) Co-operative Acts: (1) History of Co-operative Legislation in India, (2) Study of Co-operative societies Act X of 1904 and Act II of 1912 (India) and Rules (3) Study Multi-unit Co-operative Societies Act IV of 1942 (India) (4) Co-operative Societies Act VI of 1932—Madras and Rules, (5) Co-operative Land Mortgage Banks Act X of 1934 (Madras) Rules, Critical Study of the Acts—Rules and model by-laws. (B) Other Acts: Select portions of (1) Indian Contract Act—First 75 sections, (2) Transfer of property Act, (3) Agricultural Produce Markets Act (4) Indian Limitation Act (5) Madras Agricultural Debt Relief Act.

VIII. Achievement of Indian Co-operation.—Handicaps and the weakness of the movements in India—complexity of the problems—co-operative Commonwealth.

Practical Training Societies and Institutions to be shown to the students on Saturdays.

I. Credit Societies:

(Agricultural)—

I. Primary—

i. Unlimited Liability.

ii. Harijans and Backward Classes.

iii. Jaggery societies for ex-tappers.

(Non-Agricultural)—

1. Urban Banks.
2. Employees Societies.
3. District Central Bank.
4. Madras Provincial Co-operative Bank.

Land Mortgage Banks—Primary and Central Land Mortgage Bank.

II. Consumers Societies:

1. Primary Stores.
2. Students' stationery stores.
3. Mill stores or Employees' stores.
4. District Central Stores.
5. Triplicane Urban Co-operative Society.

III. Producers Societies:

1. Weavers (Primary) and Provincial.
2. Milk Supply (Primary) and Union.
3. Leather Workers.
4. Metal Workers.
5. Cottage Industries (Women's).

IV. Marketing or Loan and Sale Societies:

Primary and District.

V. Insurance:

Co-operative Fire and General.

VI. Education:

Tamil Nad Co-operative Union, Madras.

VII. Others:

1. Multi-purpose.
2. Housing Societies.
3. Co-operative Workshop.
4. Printing Press.
5. Motor Transport.
6. Better Living.
7. Labour contract.
8. Land colonisation.

9. Fisherman society.
10. Agricultural Demonstration—Improvements and Irrigation.
11. Salvage or cattle breeding.
12. Producers-*cum*-consumers.
13. Consumer's restaurant.

Joint Stock Companies:

1. Spencers.
2. Curzon and Company.
3. Indian Overseas Bank.
4. Simpson and Company.
5. S. R. V. S. (Transport).

Students may be given practical instruction for three months in the following:—It may be spread over two yeras.

1. Organisation and starting of societies and preparation of property statements.

2. Convening of Directors' meetings when decisions on important matters are taken—viz.,

(i) admission of members,
(ii) grant of loans,
(iii) taking deposits or borrowing from the Central Bank.

(iv) referring overdue loans to arbitration (v) submission of execution petitions, particularly the method of recording resolutions.

3. General Body Meetings for (1) consideration of the budget (2) election of Directors, (3) division of profits, (4) amendments to by-laws etc.

4. Section 38 enquiry and the preparation of the report.

5. Supersession of committees—Details to be furnished in the report to Registrar.

6. Arbitration work. Preparation of claims—disposal of reference—money disputes and others.

7. Liquidation work. Passing of contribution orders for loans due and for the enforcement of unlimited liability. Maintenance of Registers and other records. Returns due to the Registrar.

8. Execution work. Preparation of execution applications. Disposal ofpetitions (i) where movables are to be proceeded with (ii) where

immovables are to be proceeded with. Preparation of sale certificates. Maintenance of registers, etc.

9. Annual administration report—Annual Statements, B and C, etc.

The above items of work can be done during the four weeks in March in the first year in and round about Madras. During the first two weeks of April the students will be going to their native districts and they may be attached to a Senior Inspector of the district concerned to study the constitution and working of an unlimited liability Society, an urban Bank, a primary stores. They should specially study the working of a supervising union and the work of a Supervisor, if necessary, they have to visit one or two societies along with the Supervisor. The students should submit a detailed report, countersigned by the Senior Inspector concerned, to the Deputy Registrar, Lecturer, before the end of the third week of April.

Out of the three weeks during Mid-term holidays in the second year (September and October) they will spend two weeks in the Salem district for the study of the controlled credit scheme and other special types of societies and attend the Madras Deputy Registrar's Office for one week to study office routine, etc.

The entire period of three weeks during Christmas holidays in the second year (roughly from 13th December to 8th January) will be utilised for the audit of an unlimited liability society and of the transactions of an urban bank and one store for a month and preparation of Balance Sheets. This can be done by allotting two or three students to one Senior Inspector who will supervise the work and countersign the reports submitted by the students. This work can be done in the districts where the students desire to spend their holidays.

Name of the Book.	*Name of the Author.*
Books for reference:	
1 A Survey of the History, Principles and Organisation of the Co-operative Movement in Great Britain and Ireland.	Hall and Watkins.
2 The world Co-operative Movement ...	Margaret Digby.
3 The Co-operative Movement in India ...	Eleanor M. Hough.
4 Practical Co-operation in Asia and Africa.	W. K. H. Campbell.

	Name of the Book.	*Name of the Author.*
5	Co-operation at Home and Abroad ...	C. R. Fay.
6	People's Bank	Wolff.
7	Cottage Industries and Agriculture in Japan.	Chaman Lal.
8	Co-operation in Many Lands ...	Gorden Smith and O'Brien.
9	Co-operation in India and Abroad ...	Talmaki, S. S.
10	Theory and Practice of Co-operation in India and Abroad. Volumes I and II.	K. R. Kulkarni, M.A.
11	Year Book of Agricultural Co-operation.	Horace Plunkett Foundation.
12	Agricultural Marketing in India with special reference to Co-operative marketing of Agricultural Produce in India, Volumes I and II.	K. R. Kulkarni.
13	Co-operation and Second Five-Year Plan.	R. G. Saraiya.
14	Co-operatives and Second Five-Year Plan.	D. G. Karve.
15	International Co-operation 1937-1944 Volume IV.	I.C.A.
16	Co-operation—A. Workers' Education Manual.	I.L.O.
17	Law and Principles of Co-operation in India.	H. Calvert.
18	All-India Rural Credit Survey Committee Report, Volumes I, II and III.	Reserve Bank of India Bombay, Agricultural Credit Department.
19	The Maclagan Committee Report ...	Do.
20	Statistical Statement relating to Co-operative Movement in India.	Do.
21	Review of the Co-operative Movement in India.	Do.

Name of the Book.	*Name of the Author.*
22 Report of the Rural Banking Enquiry Committee.	Department of Economic Affairs, Ministry of Finance, Government of India.
23 The All-India Co-operative Planning Committee Report, 1946.	......
24 Sri Nicholson Report Volumes I and II.	......
25 Report of the Village and Small Scale Industries and Five-Year Plan Committee.	......
26 Co-operative Farming	Economic and Statistical Adviser, Ministry of Agriculture, Government of India.
27 Report of the Indian Delegation to China on Agrarian Co-operatives.	Planning Commission, Government of India, New Delhi.
28 Co-operative Banking in India	G. M. Laud.
29 The Madras Co-operative Manual, Volumes, I, II and III.	Sri J. C. Rayan, Registrar of Co-operative Societies, Madras.
30 The Towns and Committee Report ...	......
31 Vijiaragavachari Committee Report. ...	......
32 Narayanasami Pillai Committee Report ...	......
33 Madras Co-operative Societies Act, 1932 and Rules, etc., Madras Land Mortgage Bank Act, 1934, Multi-unit Co-operative Societies Act, 1942.	....

(d) Public Accounts and Financial Administration (Two Papers.)

A. Public Accounts:

The purpose of Accounts and Audit—Government and Commercial system of Accounts and Audit—The position and functions of the Comptroller and Auditor-General of India—Theory of Independence

of Audit—Combination of functions in relation to Accounts and Audit—Distribution of responsibility for the keeping of Accounts—Budget-and Budgetory Accounts—Funds, general and specific—Elements of costing.

General structure of the Financial Administration in India—Currency and resource arrangements—The working of a Treasury—The original record—Classification of receipts and expenditure in Government Accounts—Audit of receipts and expenditure—Audit of sanctions—Audit against provision of funds—Audit of debt and remittance transactions—Audit of stores and stock—Results of Audit—Audit reports—Office arrangement and procedure—The constitutions Codes and regulations used in Audit offices.

Grants-in-aid—Allocation of expenditure' between capital and revenue—Works Accounts—Stores and stock accounts—Post and Telegraphs Accounts Audit—Accounting for and Audit of Railway receipts and expenditure—Audit of defence services Accounts—Commercial accounting and auditing as applied to Government concerns.

B. Financial Administration:

Financial structure—Preparation of estimates—Relation of Central and Provincial Finance—Collection of revenues—Estimates in operation—Balances and resource operation—Budgeting and financial operation—Financial responsibility—Financial Control and procedure—Public debt—Local finance in India with reference to Madras State

Note:—Paper I will be on 'Public Accounts' and Paper II will be on 'Financial Administration'.

***Books Recommended*:**

Lloyd Morey & Rober, P. Hacket	...	Fundamentals of Government Accounting.
Government of India	...	Introduction to Indian Government. Audit and Accounts.
Gyan Chand	...	Financial systems of India.
Gyan Chand	...	Local Finance in India.
Dalton	...	Public Finance.

(e) Transport.

PAPER I.

ECONOMICS OF TRANSPORT

The functions of transport—The development of transport—The different means of transport and the technical characteristics—attributes required of a transport service —cost of transport—nature of economic cost—the anatomy of transport costs—relation between outport and cost—common costs and joint costs—peak costs—practical problems of determination of unit cost in transport—comparison of cost structure of different forms of transport.

Pricing in transport—merit of charging according to cost objections to cost principle—charging what the traffic will bear—discriminatory or dissimilar pricing?—Undue preference co-ordination of transport and pricing.

Investment in transport—Public and private—organisation of transport—size of transport undertakings—economics and diseconomics—Monopoly—Causes and effects in the sphere of transport—public ownership and operation of transport—

N.B.—All these topics will be studied with reference to land, water and air transport.

Transport in India:

Structure of rates and fares in India—financial position of India Railway-administration of Indian Railways—financing of roads in India—Regulation of road transport—Motor Vehicle taxation—nationalisation of road transport—problems of Indian shipping—air transport in India.

PAPER II.

TRANSPORT OPERATION AND LAW.

Railways:

Railway organisation—Passenger station design and operation—Freight terminals—goods depot operation—Marshelling yards–locomotive running—rolling stock and its distribution–arranging the service—traffic administration and control—freight train operation—railway and road transport.

Road Transport:

The bus and the trolly bus—duties of drivers and conductors—the inspector—arrangement of duties —timings, bus workings and schedules—route planning—fare collection systems. The fares structure—Traffic investigation—Parcels traffic—public relations—operating costs and Types of vehicle.

Organisation of a road haulage undertaking—the Traffic Department—The vehicle—Costs and rates—planning a new service—Express services—Depot working—operation in undeveloped countries.

Ocean Transport:

Types of ships—registration and classification—storage of vessel cargo—piers and quays—Mechanics of discharge—Transit sheds and warehouses—line organisation—Transport organisation—ships' papers—marine insurance.

Air Transport:

Airport and the community—Airport traffic control—airport types—airport ground organisation—Air-carrier accounts and records.

TRANSPORT LAW.

Common law rights and liabilities of parties—The contract of carriage and limitation of liability–The law relating to carriage of passengers and their luggage—(These will be studied with reference to rail, road, water and air transport in India).

Books for Reference:

1. Bonavia: Economics of Transport.
2. Milne: Economics of Inland Transport (Pitman).
3. Emery Troxel: Economics of Transport (Rinehart).
4. Bhatnagar: Satish Bahadur etc.: Transport in Modern India.
5. David R. Lamb: Modern Railway operation (Pitman).
6. George Dickinson: Road Hantage Operation (Pitman).
7. Dunbar G. S.: Goods Vehicle Operation (Pitman).
8. Kitchin L.D.: Bus Operation (Ilitpe).
9. Fletcher F. G.: The Fundamental Principles of Road Passenger Transport Operation (Macdonald).
10. Victor Douer: The Shipping Industry (Macdonald).
11. Froesch C. & Prokosch. W: Air Port Planning (John Wiley).
12. Dhekney: Air Transport in India.
13. Bryan: Principles of War Transportation (Ronald Press)

14. Report of Motor Vehicles Taxation Enquiry Committee
15. Khan-Freund: The Law of Carriage by Indian Transport.
16. The Indian Railways Act, 1890.
17. Sale of good Act.
18. Carriage of goods by Sea Act, 1925.
19. Carriage by Air Act, 1934.
20. Air Transport Enquiry Committee Report, 1950.

(f) Statistical Methods and their Application to Commerce. (2 papers).

PAPER I.

1. Revision of portions done in B.Com (Compulsory Paper)——Collections of data—Diagramatic representation—Calculation of statistical constants—Averages, dispersion, Skewness and Kurtosis

2. Filling a straight line and a parabola to a given data.

3. Two variables—Correlation—rank correlation & moments.

4. Elementary ideas of probability—addition and multiplication Theorems.

5. Normal curve and error—Its elementary properties.

6. Sampling (large and small samples).

7. Attributes—Association of attributes—co-efficient of association—Co-efficient of contingency.

8. Interpolation and extrapolation—Graphical methods.

9. Analysis of variance—One way and two way—classification—(no derivation of mathemtical formulas is required).

PAPER II.

1. Index number of prices, wages, trade and business, cost of living etc.

2. Vital statistics—Indian census.

3. Study of national income, production, trade and wages.

4. Agricultural statistics crop forecast.

5. Statistical quality control—Elementary treatment.

6. Time series and moving averages.

7. Compilation and analysis of internal periodical returns of cast, stock, capital expenditure, revenue receipts and expenditure.

8. The use of statistics in sales forecasting.

9. The nature and essential features of budgetary control—The sales budget in its relation to production or purchase budget and to the expenses—Finance and advertising budget.

Practical:

1. Construction of tables from collected data—Diagrams charts—distribution graphs.
2. Calculation of averages, dispersion, Skewness and Kurtosis.
3. Correlation co-efficient.
4. Random samples from finite population.
5. Time series—analysis.
6. Calculation of index numbers.

Books Recommended:

1. L. R. Connor—Statistics in Theory and Practice.
2. Boddington—Statistics and their application to Commerce.
3. Ghosh and Chowdry —Statistics in Theory and Practice.
4. Coxton and Cawden—Applied General Statistics.
5. Moroney—Facts and figures.
6. Mills—Statistical Methods.
7. Rice—Control charts.

(g) Advanced Currency and Banking (Two papers).

Money and Banking:

Nature of Money-Value of Money—various theories—the quantity theory, the cash Balance theory, the savings and investment theory—changes in the value of money: effects and measurement.

Creation of money—commercial banking—the money market and the institutions there—The Central Bank—its structure and functions—the methods of Central Bank—control of money market–the rate of interest supply of funds and economic activity—cheap money policy—banks and industry.

Commercial Banks' earning assests and earning capacity—distribution of assets—commercial and central banking in new countries.

The International Monetary Fund—Origin and functions.

Recent trends in banking:

New techniques of credit control—changing legal ratios selective credit control etc.—the future of interest rates—problems of central banking policy in peace and war—war time trends in bank deposits and assests—post-war trends in role of banks—the problem of industrial financing.

Indian Monetary and Banking system:

Evolution and present position—The evolution of Reserve bank of India and its role in the Indian money market—the structure of the Indian money market—State Bank of India.

Banking Reform in India:

The Indian Banking Companies' Act—main provisions—Deposit insurance scheme—question of nationalisation of commercial banks—Banking organisation in India.

The Banker and Customer:

What constitutes a customer—general relation—special features of the relationship—different types of customers—different types of customer's account—payment and collection of cheques and bills—other services to customers—the Banker as borrower—types of deposit.

The Banker as Lender:

The principles of good lending—securities for advances—stock and shares, guarantees, produce and goods, land, life policies etc , etc.

Note.—Paper I will be on "Advanced Currency' and Paper II will be on 'Advanced Banking,.

Reference Books :

1.	Crowther	... Outline of Money.
2.	Sayers	... Modern Banking.
3.	E. Thomas	... Banker and Customer.
4.	E. Thomas	... Foreign Exchange and Banking.
5.	E. Thomas	... Arithmetic of Foreign Exchange.
6.	Chatterjee	... Indian Economics, Vol. II, relating to Indian Currency and Banking and Exchange Problems.
7.	Jather and Beri	... Indian Economics, Vol. II, relating to Indian Currency and Banking and Exchange Problems

8.	S. K. Basu	... Recent Banking Developments.
9.	Keynes	... Treaties on Money, Vols. I & II.
10.	Evitt, H. E.	... Practical Banking.
11	Evitt, H. E	... Foreign Exchange and Exchange Control.
12.	M. L Tannon	... Banking Law and Practice in India.
13.	M. H. Delok	... Central Banking.
14.	A. F. W.	.. Central Banking in British Dominions.
15.	H. P. Sheldon	... Practice and Law of Banking.
16.	S. E. Sen	... Central Bank and Undeveloped Money Markets.
17.	Srump	... ABC of Foreign Exchange.
18.	Muranjan	... Modern Banking in India.

(h) Marketing and Distribution.

(Two papers.)

Production, distribution and marketing—Functional distribution—Physical distribution—Distribution functions—Channels of distribution—Retail wholesale and direct selling —Various types connected with the above different types of markets—Co-operative marketing—Consumers campaigns—Distribution costs—Financing of marketing—Market research—Formation of sales policy—Price policies and practices—Resale price maintenance—Marketing risks and their control—Organized produce markets—Stock exchanges, Ware-houses, types and organisation—Market survey and reports—Trade Associations—Agents and their functions—Methods of sales promotion—Granting and trade marks—Advertisement—Choice and training of salesman—Control of sales—Sales conventions and conferences—Legal aspects of selling—State Trading—State controls—Trade Commissioners and Marketing officers.

Practical:

Study of forms and procedure—

(*a*) of Produce Markets

(*b*) storck makets.

(*c*) Ware houses near important ports.

(*d*) Market Reports—Market Survey—Study of some typical co-operative stores, marketing societies—Departmental stores, etc.

Note.—Paper I will relate to topics upto and including 'Stock Exchanges, Warehouses, types and Organisations and Paper II will relate to the rest of the topics.

***Books recommended for reference*:**

1. Whitehead: Administration of Marketing Sellling (Pitman).
2. Margerett Hill: Distribution Trading (Hutchinsons' Library).
3. Indian Sale of Goods Act.
4. Yamey: Resale price maintenance.
5. Converse and Hueges: Elements of Marketing.
6. Westing: Reading in Marketing.
7. Canfield: Sales Administration.
8. Davar: Practical Salesmanship.

(i) Cost-Accounts (Two papers)

Paper I.

(a) Objects and advantages of costing—General idea of element of cost.

(b) Organisation of works—Departmental plan—Functional plan—Staff and line plan—Relation between cost and Accounts departments—and other production departments.

(c) Prime cost—Factory cost—Cost of production and other terms.

(d) (i) Materials—Stores organisation—Control of purchases and issue—Stock verification—Methods of pricing materials—Records (ii) Labour—Methods of payment—Selection—Control of wages and employees—Works amenities—Employees' organisation—Records (iii) Overhead charges—Factory overhead—Selling and distribution; administrative overhead—Allocation and distribution of overheads—Records.

(e) Relation between financial and cost records—reconciliation—Interlocking systems.

Paper II.

(a) Different methods of costing—General problems of costing.

(b) Budgetary Control.

(c) Collection and arrangement of the data—Presentation of results—Cost sheets—Graphs—Statistical reports.

(d) Application to various industries and undertakings.

Practical:

1. Making entries in forms from given data—Material records—Order—reciept—issue—pricing—Bincard—Analysis sheets—Stock taking Records for employees and wages—Analysis sheets—Time sheets.

Record for overhead charges—analysis sheets—Plant Register.

2. Cost sheets, charts and reports.

3. Reconciliation of financial and cost records.

4. Visits to a few firms in the city having a costing departmt.

Books Recommended:

1. Works organisation, Management and cost control—Batliboi.
2. Cost Accounting—Sarkar.
3. Cost accounting and Costing methods—Whelden.
4 Applied Costing—Wheldan.
5. Marginal Costing—Lawrence and Humphrey.
6. Farory Organisation and Management—Saunders.
7. Cct Accounting—Lawrence.
8. Cost Accounting—Blacker.

(j) Insurance and actuarial Science (Two papers)

PAPER I.

1. Nature and meaning of Insuranec—Various types of Insurance contract—History of Insurance—Its social and economic importance—Insurers.

2. General procedure in issuing policies—Different types of policies—Conditions—settling claims—General study.

3. General principles of Insurance contract—Special legal principles of Insurance—Insurable interest—Indemnity—Utmost good faith—Proximate cause.

4. General principles of premium fixing—Tariff rates—Retention and reinsurance.

5. Insurance Company accounts—Special records—Expense ratio—Annual and valuation returns—Taxation of profits.

6. Insurance Acts—State Insurance.

7. Compound interest—Amunities certain—Loans and securities—Methods of repayment of loans—valuation of loans—cumulative sinking funds—investment of funds—Types of investments—Factors to be considered in making investments.

PAPER II.

1. Elements of probability—Addition and multiplication theories—Repeated trials—Bionomial distribution.

2. Statistics—Measurers of location—dispersion—correlation.

3. Mortality tables—Statistical applications—laws of mortality—Gompertz and Makham—several types of contracts—Assurances and annuities.

4. Calculation of premiums—Net and office—Calculation of reserves—Surrender value—Paid-up value—Alteration of policy from one type to another.

5. Finite difference—Interpolation.

6. Joint life probabilites—Value of premium in joint life and contingent assurances—Reversionary annuity—Policy value—Surrender value—Paid-up value.

Practical:

I. Study of forms of proposal, reports, policies and the conditions—How to fill up—Procedure in accepting claims—Procedure in settling claims, certificates therefor—Registers and statements required under the Act—Insurance accounts—Registers and books.

II. Calculation of premium, surrender value, paid-up value and policy forms.

Visit to Life Insuarance Corporation Office and some Insurance companies in the city.

Books Recommended:

1.	Dr. R. M. Ray	...	Life Insurance India.
2.	P. A. S. Mani	...	Life Insurance India.
3.	Insurance Act	...	Life Insurance Corporation Act
4.	Dunsdale	...	Principles and Practice ! Accident Insurance—Part I.
5.	Hall Thright	...	Higher Alzebra.
6.	Freeman	...	Actuarial Mathematics (Vol. II)
7.	L. G. Whyte	...	Finance and Investments (Vol. II)
8.	Spurgar	...	Life Contingencies.
9.	Denal	...	Compound Interest.
1C.	Welsar and Sheriff	...	Insurance Office Organisation and Management.

CHAPTER L

(1)

Degree of Doctor of Philosophy (Ph.D.)

Regulations

(*Common to Faculties of Arts, Science, Fine Arts and Oriental Learning*)

Eligibility.

1. A candidate who has qualified for the Degree of Master of Arts by examination or the M.Litt. Degree or Degree of Master of Science, Master of Oriental Learning of this University in any of the Faculties of Arts, Science, Fine Arts or Oriental Learning or of any other University recognised by the Syndicate as equivalent thereto, and who has subsequently worked for a minimum period of three years after registration for the Ph.D. Degree in an approved institution or department may present himself for the Degree of Doctor of Philosophy (Ph.D.)

Provided that graduates of other Universities shall not be eligible to submit theses for the Degree unless they have resided within the University limits or area, for three-years, subsequent to registration, and have pursued a course of research in the University or constituent or affiliated college thereof approved for this purpose for this period.

Provided that candidates who have qualified for the B.A. (Hons.) or B.Sc. (Hons.) or B.O.L. (Hons.) Degree, or who have taken the Master's Degree by efflux of time may be permitted.

(*a*) to join the Second year of the M.A. or M.Sc. Degree course under the Revised Regulations;

or

(*b*) to register for the M.Litt. or M.Sc. Degree by research, as the case may be, under the Old Regulations which will be continued as a transitory measure for the benefit of such candidates till the end of the academic year, 1962-63, and then be declared eligible to register for the Ph.D. Degree;

or

(*c*) in the case of Honours graduates in Science subjects to take the M.Sc. Degree (by examination) under the Old Regulation after undergoing the course of study for one year. This examination will be conducted as a transitory measure upto and including the examination at the end of the academic year 1960-61. Such candidates as qualify for this Degree will be eligible for registration for the Ph. D. Degree.

Registration.

2. A candidate for the Degree shall apply to the Registrar for Registration in the prescribed form together with the fee preseribed so as to reach the Registrar on any day in the month of January or August each year and should furnish the following particulars:

(*a*) his qualifications and previous study and research, if any :

(*b*) the special subject, in which he intends to prosecute research. The subject of research shall be one which relates to the main branch of knowledge chosen for the Post-graduate Degree.

(*c*) the name of the Teacher of this University or the teacher of an Institution recognised by or affiliated to this University, under whose supervision and guidance he proposes to work and the name of the laboratory where necessary or Institute or College where he proposes to conduct his research, accompanied by the written consent of the teacher agreeing to supervise his work and in the case of the candidate proposing to do work in an Institution from the Head of the Institution permitting him to work.

Provided that candidates who have qualified for the Master's Degree by research shall be exempted from research under supervision as prescribed in clause (c) above.'

3. Every applicant who satisfies all the conditions stipulated shall after approval by the Syndicate be registered as a candidate for the Degree.

Approval of Institutions.

4. The institutions for purposes of approval for research shall ordinarily be Departments of the University or Colleges affiliated to or recognised by the University as of Post-graduate standard in the branch of study concerned or special Departments of Professional Colleges. The Syndicate however, may in regard to Colleges not affiliated in Post-graduate Degree courses, recognise particular Departments of study provided it is satisfied both with regard to the Laboratory facilities available and the qualifications of the person for supervision, such recognition being for a period of time and renewable subject to such

conditions as the Syndicate may lay down. In regard to subjects for which research facilities are not available within the University, it shall be competent for the Syndicate to recognise, in individual merits, Research Institutes or Departments of an All-India characetr and the Teachers or officers employed therein for purposes of enabling persons to pursue research in such Institutes or Departments with a view to qualifying for the Ph.D. Degree of this University.

Examination Part I.

5. At the end of the first year of the period of work a candidate shall appear before a Board of the Faculty appointed by the Syndicate. The Board shall test the candidate's attainments on the methodology of research.

The Board shall report on the candidates fitness to procedd with the course for the Ph.D. Such candidates as do not satisfy the Board may be referred back for a further period of six months.

Submission of thesis.

6. After the expiration of the period of research for two yeras subsequent to his satisfying the Board, every candidate shall submit with his application for the Degree four copies of the thesis, printed or type-written, embodying the results of the research carried out by him, together with the prescribed fee. Every candidate shall also submit with his application and thesis a certificate from the teacher under whom he worked that the thesis submitted is a record of research work done by the candidate during the period of study under him, and that the thesis has not previously formed the basis for the award to the candidate of any Degree, Diploma, Associateship,

Fellowship or other similar title, together with a statement from the teacher indicating the extent to which the thesis represents independent work on the part of the candidate. If the thesis submitted has formed in part the basis for the award of a previous research degree, the candidate shall clearly set forth in a preface or written statement the portion or portions which have formed the basis for the award of the previous Degree.

Date of submission of Application and thesis.

7. (*i*) The application for the Degree and the thesis must be forwarded so as to be received by the Registrar not later than the last day in the month of January or August and after completion of the research work in accordance with the conditions laid down in Regulation 2 *supra*.

(*ii*) A candidate may also forward as supplementary papers to his thesis printed copies of any contribution or contributions to the knowledge of his subject or of any cognate branch of science he may have published in Journals or Periodicals with the names of such Journals or Periodicals.

Value of thesis by examination.

8. The thesis shall be referred by the Syndicate for report to a Board of Examiners consisting of not less than two persons.

The Board of Examiners who value the thesis shall report on the merit of the candidate for the Degree as 'Commended' or 'Highly commended' or 'Not commended'.

The Board of Examiners appointed to report on the thesis may, at their discretion, ask a candidate to

submit to an Oral examination, provided, however, it shall be competent for the Syndicate in the case of a Board of Examiners outside India to arrange for the holding of an Oral Examination by a Board of Examiners in India.

After receipt from the Board or Boards of Examiners the report on the thesis and on the oral examination, if any, the Syndicate shall decide whether the candidate has qualified for the Degree or not and publish the result.

Number of chances.

9. A candidate shall not be permitted to submit a thesis for the Degree on more than two occasions; provided however, it shall open to the Syndicate if the Board of Examiners so recommend, to permit the candidate to submit a thesis on a third occasion.

Publication of thesis.

10. The thesis, whether approved or not, shall not be published without the sanction of the Syndicate and the Syndicate may grant permission for the publication under such conditions as it may impose.

Exceptions.

11. Teachers who are working in the University or Teachers in Colleges affiliated to or recognised by the University and who are Heads of Departments in Colleges may be permitted to submit a thesis for the Degree without working under supervision; provided however, they register themselves for the Degree as specified in Regulation 2 supra; and provided further the Syndicate is satisfied with the facilities available

for research in such Institutions. This concession shall not apply to teachers who are not Heads of Departments.

Transitory provision.

12. Candidates registered for the Degree under the Regulations in force prior to August 1958 shall be permitted to supplicate for the Degree under the Regulations in force for a maximum period of five years from the date of registration.

13. A candidate who has qualified for the Master's Degree by research of this University shall be exempted from one year of course for the Ph.D. Degree and from the examination on the 'methodology of research' (Part I).

(2)

Degree of Doctor of Philosophy (Ph.D.)

Regulations.

(Faculty of Commerce)

Eligibility

1. A candidate who has passed the Master's Degree examination in Commerce of this University or of any other University recognised by the Syndicate as equivalent thereto, and who has subsequently worked for a minimum period of three years after registration for the Ph.D. Degree in an approved institution or department may present himself for the Degree of Doctor of Philosophy (Ph.D.)

Provided that graduates of other Universities shall not be eligible to submit theses for the Degree unless

they have resided within the University limits or area, for theree-years, subsequent to registration, and have pursued a course of research in the University or constituent or affiliated college thereof approved for this purpose for this period.

Registration

2. A candidate for the Degree shall apply to the Registrar for Registration in the prescribed form together with the fee prescribed so as to reach the Registrar on any day in the month of January or August each year and should furnish the following particulars:

(a) his qualifications and previous study and research, if any;

(b) the special subject in which he intends to prosecute research. The subject of research shall be one which relates to the main branch of knowledge chosen for the Post-graduate Degree.

(c) the name of the Teacher of this University or the teacher of an Institution recognised be or affiliated to this University, under whose supervision and guidance he proposes to work and the name of the laboratory where necessary or Institute or College where he proposes to conduct his research, accompanied by the written consent of the teacher, agreeing to supervise his work and in the case of the candidate proposing to do work in an Institution from the Head of the Institution permitting him to work.

3. Every applicant who satisfies all the conditions stipulated shall afetr approval by the Syndicate be registered as a candidate for the Degree.

Approval of Institutions

4. The institutions for purposes of approval for research shall ordinarily be Departments of the University or Colleges affiliated to or recognised by the University as of Post-graduate standard in the branch of study concerned or special Departments of Professional Colleges. The Syndicate however, may in regard to Colleges not affiliated in Post-graduate Degree courses, recognise particular Departments of study provided it is satisfied both with regard to the Laboratory facilities available and the qualifications of the person for supervision, such recognition being for a period of time and renewable subject to such conditions as the Syndicate may lay down. In regard to subjects for which research facilities are not available within the University, it shall be competent for the Syndicate to recognise, in individual merits, Research Institutes or Departments of an All-India character and the Teachers or officers employed therein for purposes of enabling persons to pursue research in such Institutes or Departments with a view to qualifying for the Ph.D. Degree of this University.

Examination Part I

5. At the end of the first year of the period of work a candidate shall appear before a Board of the Faculty appointed by the Syndicate. The Board shall test the candidate's attainments on the methodology of research.

The Board shall report on the candidates fitness to proceed with the course for the Ph.D. Such candidates as do not satisfy the Board may be referred back for a further period of six months.

Submission of thesis

6. After the expiration of the period of research for two years subsequent to his satisfying the Bord, every candidate shall submit with his application for the Degree four copies of the thesis, printed or type-written, embodying the results of the research carried out by him, together with the prescribed fee. Every candidate shall also submit with his application and thesis a certificate from the teacher under whom he worked that the thesis submitted is a record of research work done by the candidate during the period of study under him, and that the thesis has not previously formed the basis for the award to the candidate of any Degree, Diploma, Associateship, Fellowship or other similar title, together with a statement from the teacher indicating the extent to which the thesis represents independent work on the part of the candidate. If the thesis submitted has formed in part the basis for the award of a previous research degree, the candidate shall clearly set forth in a preface or written statement the portion or portions which have formed the basis for the award of the previous Degree.

Date of submission of Application and thesis

7. (i) The application for the Degree and the thesis must be forwarded so as to be received by the Registrar not later than the last day in the month of January or August and after completion of the research work in accordance with the conditions laid down in Regulation 2 *supra.*

(ii) A candidate may also forward as supplementary papers to his thesis printed copies of any contribution or contributions to the knowledge of his subject or of any cognate branch of science he may have

published in Journals or Periodicals with the names of such Journals or Periodicals.

Value of thesis by Examination

8. The thesis shall be referred by the Syndicate for report to a Board of Examiners consisting of not less than two persons.

The Board of Examiners who value the thesis shall report on the merit of the candidate for the Degree as 'Commended' or 'Highly Commended' or 'Not Commended'.

The Board of Examiners appointed to report on the thesis may, at their discretion, ask a candidate to submit to an Oral examination, provided, however, it shall be competent for the Syndicate in the case of a Board of Examiners outside India to arrange for the holding of an Oral Examination by a Board of Examiners in India.

After receipt from the Board or Boards of Examiners the report on the thesis and on the oral examination, if any, the Syndicate shall decide whether the candidate has qualified for the Degree or not and published the result.

Number of chances.

9. A candidate shall not be permitted to submit a thesis for the Degree on more than two occasions; provided however, it shall be open to the Syndicate if the Board of Examiners so recommend, to permit the candidate to submit a thesis on a third occasion.

Publication of thesis

10. The thesis, whether approved or not, shall not be published without the sanction of the Syndicate and the Syndicate may grant permission for the publication under such conditions as it may impose.

Exceptions

11. Teachers who are working in the University or Teachers in colleges affiliated to or recognised by the University and who are Heads of Departments in Colleges may be permitted to submit a thesis for the Degree without working under supervision; provided however, they register themselves for the Degree as specified in Regulations 2 supra; and provided further the Syndicate is satisfied with the facilities available for research in such Institutions. This concession shall not apply to teachers who are not Heads of Departments.

Transitory provision

12. Candidates registered for the Degree under the Regulations in force prior to August 1958 shall be permitted to supplicate for the Degree under the Regulations in force for a maximum period of five years from the date of registration.

13. A candidate who has qualified for the Master's Degree by reasearch of this University shall be exempted from one year of course for the Ph.D. Degree and from the examination on the 'methodology of research' (Part I).

(3)

Degree of Doctor of Philosophy (Ph.D.) Regulations.

(*Faculty of Medicine*)

Eligibility

1. A candidate who has qualified for the M.Sc. Degree or for the M.D. or M.S. in the Faculty of Medicine of this University or of any other University recognised by the Syndicate as equivalent thereto

and who has subsequently worked for a minimum period of three years after registration for the Ph.D. Degree in an approved institution or department may present himself for the Degree of Doctor of Philosophy (Ph. D.)

Provided that graduates of other Universities shall not be eligible to submit theses for the Degree unless they have resided within the University limits or area, for three years, subsequent to registration, and have pursued a course of research in the University or constituent or affiliated college thereof for this period.

Registration

2. A candidate for the Degree shall apply to the Registrar for Registration in the prescribed form together with the fee prescribed so as to reach the Registrar or any day in the month of January or August each year and should furnish the following particulars.

(a) his qualifications and previous study and reseasch, if any;

(b) the special subject in which he intends to prosecute research. The subject of research shall be one which relates to the main branch of knowledge chosen for the Post-graduate Degree.

(c) the name of the Teacher of this University or the teacher of an Institution recognised by or affiliated to this University, under whose supervision and guidance he proposes to work and the name of the laboratory where necessary or Institute or College where he proposes to conduct his research, accompanied by the written consent of the teacher, agreeing to supervise his work and in the case of candidate proposing to do work in an Institution from the Head of the Instituion permitting him to work.

3. Every applicant who satisfies all the conditions stipulated shall after approval by the Syndicate be registered as a candidate for the Degree.

Approval of Institutions

4. The institutions for purposes of approval for research shall ordinarily be Departments of the University or Colleges affiliated to or recognised by the University as of Post-graduate standard in the branch of study concerned or special Departments of Professional Colleges. The Syndicate however, may in regard to Colleges not affiliated in Post-graduate Degree courses, recognise particular Departments of study provided it is satisfied both with regard to the Laboratory facilities available and the qualifications of the person for supervision, such recognition being for a period of time and renewable subject to such conditions as the Syndicate may lay down. In regard to subject for which research facilities are not available within the University, it shall be competent for the Syndicate to recognise, in individual merits, Research Institutes or Departments of an All-India character and the Teachers or officers employed therein for purposes of enabling persons to pursue research in such Institutes or Departments with a view to qualifying for the Ph.D. Degree of this University.

Examination Part I

5. At the end of the first year of the period of work a candidate shall appear before a Board of the Faculty appointed by the Syndicate. The Board shall test the candidate's attainments on the methodology of research.

The Board shall report on the candidates fitness to proceed with the course for the Ph.D. Such candidates

as do not satisfy the Board may be referred back for a further period of six months.

Submission of Thesis

6. After the expiration of the period of research for two years subsequent to his satisfying the Board, every candidate shall submit with his application for the Degree four copies of the thesis, printed or type-written, embodying the results on the research carried out by him, together with the prescribed fee. Every candidate shall also submit with his application and thesis a certificate from the teacher under whom he worked that the thesis submitted is a record of research work done by the candidate during the period of study under him, and that the thesis has not previously formed the basis for the award to the candidate of any Degree, Diploma, Associateship, Fellowship or other similar title, together with a statement from the teacher indicating the extent to which the thesis represents independent work on the part of the candidate. If the thesis submitted has formed in part the basis for the award of a previous research degree, the candidate shall clearly set forth in a preface or written statement the portion or portions which ave formed the basis for the award of the previous Degree.

Date of submission of application and thesis.

7. (i) The application for the Degree and the thesis must be forwarded so as to be received by the Registrar not later than the last day in the month of January or August and after completion of the research work in accordance with the condition laid down in Regulation 2 *supra.*

(ii) A candidate may also forward as supplementary papers to his thesis printed copies of any contribution or contributions to the knowledge of his subject or of any cognate branch of science he may have

published in Journals or Periodicals with the names of such Journals or Periodicals.

Value of thesis by examination

8. The thesis shall be referred by the Syndicate for report to a Board of Examiners consisting of not less than two persons.

The Board of Examiners who value the thesis shall report on the merit of the candidate for the Degree as 'Commended' or 'Highly commended' or 'Not commended'.

The Board of Examiners appointed to report on the thesis may, at their discretion, ask a candidate to submit to an Oral examination, provided, however, it shall be competent for the Syndicate in the case of a Board of Examiners outside India to arrange for the holding of an Oral Examination by a Board of Examiners in India.

After receipt from the Board or Boards of Examiners the report on the thesis and on the oral examination, if any, the Syndicate shall decide whether the candidate has qualified for the Degree or not and publish the result.

Number of chances

9. A candidate shall not be permitted to submit a thesis for the Degree on more than two occasions; provided however, it shall be open to the Syndicate if the Board of Examiners so recommend, to permit the candidate to submit a thesis on a third occasion.

Publication of thesis

10. The thesis, whether approved or not, shall not be published without the sanction of the Syndicate and the Syndicate may grant permission for the publication under such conditions as it may impose.

Exceptions

11. Teachers who are working in the University or Teachers in colleges affiliated to or recognised by the University and who are Heads of Departments in Colleges may be permitted to submit a thesis for the Degree without working under supervision; provided however, they register themselves for the Degree as specified in Regulation 2 supra and provided further the Syndicate is satisfied with the facilities available for research in such Institutions. This concession shall not apply to teachers who are not Heads of Departments.

Transitory Provision

12. Candidates registered for the Degree under the Regulations in force prior to August 1958 shall be permitted to supplicate for the Degree under the Regulations in force for a maximum period of five years from the date of registration.

13. A candidate who has qualified for the Master's Degree by research of this University shall be exempted from one year of course for the Ph.D. Degree and from the examination on the 'methodology of research' (Part I.)

(4)

Degree of Doctor of Philosophy (Ph.D.)

Regulations

(Faculty of Engineering)

Eligibility

1. A candidate who has passed the M.Sc. Degree Examination in Engineering of this University or of any other University recognised by the Syndicate as equivalent thereto, and who has subsequently worked for a minimum period of three years after registration

for Ph.D. Degree in an approved institution or department may present himself for the Degree of Dotcor of Philosophy (Ph.D.)

Provided that graduates of other Universities shall not be eligible to submit theses for the Degree unless they have resided within the University limits or area, for three years, subsequent to registration, and have pursued a course of research in the University or constituent or affiliated college thereof for this period.

Registration

2. A candidate for the Degree shall apply to the Registrar for Registration in the prescribed form together with the fee prescribed so as to reach the Registrar on any day in the month of January or August each year and should furnish the following particulars.:

(a) his qualifications and previous study and research, if any ;

(b) the special subject in which he intends to prosecute research. The subject of research shall be one which relates to the main branch of knowledge chosen for the Post-graduate Degree.

(c) The name of the Teacher of this University or the teacher of an Institution recognised by or affiliated to this University, under whose supervision and guidance he proposes to work and the name of the laboratory where necessary or Institute or College where he proposes to conduct his research, accompanied by the written consent of the teacher, agreeing to supervise his work and in the case of the candidate proposing to do work in an Institution from the Head of the Institution permitting him to work.

3. Every applicant who satisfies all the conditions stipulated shall after approval by the Syndicate be registered as a candidate for the Degree.

Approval of Institutions

4. The institutions for purposes of approval for research shall ordinarily be Departments of the University or Colleges affiliated to or recognised by the University as of Post-graduate standard in the branch of study concerned or special Departments of Professional Colleges. The Syndicate however, may in regard to colleges not affiliated in Post-graduate Degree courses, recognise particular Departments of study provided it is satisfied both with regard to the Laboratory facilities available and the qualifications of the person for supervision, such recognition being for a period of time and renewable subject to such conditions as the Syndicate may lay down. In regard to subjects for which research facilities are not available within the University, it shall be competent for the Syndicate to recognise, in individual merits, Research Institutes or Departments of an All-India character and the Teachers or officers employed therein for purposes of enabling persons to pursue research in such Institutes or Departments with a view to qualifying for the Ph.D. Degree of this University.

Examination Part I.

5. At the end of the first year of the period of work a candidate shall appear before a Board of the Faculty appointed by the Syndicate. The Board shall test the candidate's attainments on the methodology of research.

The Board shall report on the candidates fitness to proceed with the course for the Ph.D. Such candidates as do not satisfy the Board may be referred back for a further period of six months.

Submission of thesis.

6. After the expiration of the period of research for two years subsequent to his satisfying the Board, every candidate shall submit with his application for the Degree four copies of the thesis, printed or type-written, embodying the results of the research carried out by him, together with the prescribed fee. Every candidate shall also submit with his application and thesis a certificate from the teacher under whom he worked, that the thesis submitted is a record of research work done by the candidate during the period of study under him, and that the thesis has not previously formed the basis for the award to the candidate of any Degree, Diploma, Associateship, Fellowship or other similar title, together with a statement from the teacher indicating the extent to which the thesis represents independent work on the part of the candidate. If the thesis submitted has formed in part the basis for the award of a previous research degree, the candidate shall clearly set forth in a preface or written statement the portion or portions which have formed the basis for the award of the previous Degree.

Date of submission of application and thesis

7. (i) The application for the Degree and the thesis must be forwarded so as to be received by the Registrar not later than the last day in the month of January or August and after completion of the research work in accordance with the conditions laid down in Regulation 2 *supra.*

(ii) A candidate may also forward as supplementary papers to his thesis printed copies of any contribution or contributions to the knowledge of his subject or of any cognate branch of science he may have published in Journals or Periodicals with the names of such Journals or Periodicals.

Value of thesis by examination

8. The thesis shall be referred by the Syndicate for report to a Board of Examiners consisting of not less than two persons.

The Board of Examiners who value the thesis shall report on the merit of the candidate for the Degree as 'Commended' or 'Highly Commended' or 'Not Commended'.

The Board of Examiners appointed to report on the thesis may, at their discretion, ask a candidate to submit to an Oral examination, provided, however, it shall be competent for the Syndicate in the case of a Board of Examiners outside India to arrange for the holding of an Oral Examination by a Board of Examiners in India.

After receipt from the Board or Boards of Examiners the report on the thesis and on the oral examination, if any, the Syndicate shall decide whether the candidate has qualified for the Degree or not and publish the result.

Number of chances

9. A candidate shall not be permitted to submit a thesis for the Degree on more than two occasions; provided however, it shall be open to the Syndicate if the Board of Examiners so recommended, to permit the candidate to submit a thesis on a third occasion.

Publication of thesis

10. The thesis, whether approved or not, shall not be published without the sanction of the Syndicate and the Syndicate may grant permission for the publication under such conditions as it may impose.

Exceptions

11. Teachers who are working in the University or Teachers in Colleges affiliated to or recognised by the University and who are Heads of Departments in Colleges may be permitted to submit a thesis for the Degree without working under supervision; provided however, they register themselves for the Degree as specified in Regulation 2 supra; and provided further the Syndicate is satisfied with the facilities available for research in such Institutions. This concession shall not apply to teachers who are not Heads of Departments.

Transitory Provision.

12. Candidates registered for the Degree under the Regulations in force prior to August 1958 shall be permitted to supplicate for the Degree under the Regulations in force for a maximum period of five years from the date of registration.

13. A candidate who has qualified for the Master's Degree by research of this University shall be exempted from one year of course for the Ph.D. Degree and from the examination on the 'methodology of research' (Part I).

(5)

Degree of Doctor of Philosophy (Ph.D.)

Regulations

(Faculty of Teaching)

Eligibility

1. A candidate who has passed the M. Ed. Degree examination of this University or of any other University recognised by the Syndicate as equivalent thereto, and who has subsequently worked for a minimum period of three years after registration for the Ph.D. Degree in an approved institution or department may present himself for the Degree of Doctor of Philosophy (Ph.D.)

Provided that graduates of other Universities shall not be eligible to submit theses for the Degree unless they have resided within the University limits or area, for three-years, subsequent to registration, and have pursued a course of research in the University or constituent or affiliated college thereof for this period.

Registration

2. A candidate for the Degree shall apply to the Registrar for Registration in the prescribed form together with the fee prescribed so as to reach the Registrar on any day in the month of January or August each year and should furnish the following particulars:

(a) his qualifications and previous study and research, if any;

(b) the special subject in which he intends to prosecute research. The subject of research shall be one which relates to the main branch of knowledge chosen for the Post-graduate Degree.

(c) the name of the Teacher of this University or the teacher of an Institution recognised by or affiliated to this University, under whose supervision and guidance he proposes to work and the name of the laboratory where necessary or Institute or College where he proposes to conduct his research, accompanied by the written consent of the teacher, agreeing to supervise his work and in the case of the candidate proposing to do work in an Institution from the Head of the Institution permitting him to work.

3. Every applicant who satisfies all the conditions stipulated shall after approval by the Syndicate be registered as a candidate for the Degree.

Approval of Institutions

4. The institutions for purposes of approval for research shall ordinarily be Departments of the University or Colleges affiliated to or recognised by the University as of Post-graduate standard in the branch of study concerned or special Departments of Professional Colleges. The Syndicate however, may in regard to Colleges not affiliated in Post-graduate Degree courses, recognise particular Departments of study provided it is satisfied both with regard to the Laboratory facilities available and the qualifications of the person for supervision, such recognition being for a period of time and renewable subject to such conditions as the Syndicate may lay down. In regard to subjects for which research facilities are not available within the University, it shall be competent for the Syndicate to recognise, in individual merits, Research Institutes or Departments of an All-India character and the Teachers or officers employed therein for purposes of enabling

persons to pursue research in such Institutes or Departments with a view to qualifying for the Ph.D. Degree of this University.

Examination Part I

5. At the end of the first year of the period of work a candidate shall appear before a Board of the Faculty appointed by the Syndicate. The Board shall test the candidate's attainments on the methodology of research.

The Board shall report on the candidates fitness to proceed with the course for the Ph.D. Such candidates as do not satisfy the Board may be referred back for a further period of six months.

Submission of thesis

6. After the expiration of the period of research for two years subsequent to his satisfying the Board, every candidate shall submit with his application for the Degree four copies of the thesis, printed or type-written, embodying the results of the research carried out by him, together with the prescribed fee. Every candidate shall also submit with his application and thesis a certificate from the teacher under whom he worked that the thesis submitted is a record of research work done by the candidate during the period of study under him, and that the thesis has not previously formed the basis for the award to the candidate of any Degree, Diploma, Associateship, Fellowship or other similar title, together with a statement from the teacher indicating the extent to which the thesis represents independent work on the part of the candidate. If the thesis submitted has formed in part the basis for the award of a previous research degree, the candidate shall clearly set forth in a preface or written statement the portion or portions which have formed the basis for the award of the previous Degree.

Date of submission of Application and thesis

7. (i) The application for the Degree and the thesis must be forwarded so as to be received by the Registrar not later than the last day in the month of January or August and after completion of the research work in accordance with the conditions laid down in Regulation 2 *supra.*

(ii) A candidate may also forward as supplementary papers to his thesis printed copies of any contribution or contributions to the knowledge of his subject or of any cognate branch of science he may have published in Journals or Periodicals with the names of such Journals or Periodicals.

Value of thesis by Examination

8. The thesis shall be referred by the Syndicate for report to a Board of Examiners consisting of not less than two persons.

The Board of Examiners who value the thesis shall report on the merit of the candidate for the Degree as 'Commended' or 'Highly Commended' or 'Not Commended'.

The Board of Examiners appointed to report on the thesis may, at their discretion, ask a candidate to submit to an Oral examination, provided, however, it shall be competent for the Syndicate in the case of a Board of Examiners outside India to arrange for the holding of an Oral Examination by a Board of Examiners in India.

After receipt from the Board or Boards of Examiners the report on the thesis and on the oral examination, if any, the Syndicate shall decide whether the candidate has qualified for the Degree or not and publish the result.

Number of chances.

9. A candidate shall not be permitted to submit a thesis for the Degree on more than two occasions ; provided however, it shall be open to the Syndicate if the Board of Examiners so recommend, to permit the candidate to submit a thesis on a third occasion.

Publication of thesis

10. The thesis, whether approved or not, shall not be published without the sanction of the Syndicate and the Syndicate may grant permission for the publication under such conditions as it may impose.

Exceptions

11. Teachers who are working in the University or Teachers in colleges affiliated to or recognised by the University and who are Heads of Departments in Colleges may be permitted to submit a thesis for the Degree without working under supervision; provided however, they register themselves for the Degree as specified in Regulation 2 supra; and provided further the Syndicate is satisified with the facilities available for research in such Institutions. This concession shall not apply to teachers who are not Heads of Departments.

Transitory provision

12. Candidates registered for the Degree under the Regulations in force prior to August 1958 shall be permitted to supplicate for the Degree under the Regulations in force for a maximum period of five years from the date of registration.

13. A candidate who has qualified for the Master's Degree by research of this University shall be exempted from one year of course for the Ph. D. Degree and from the examination on the 'methodology of research' (Part I).

(6)

Degree of Doctor of Philosophy (Ph. D.)

Regulations.

(Faculty of Agriculture)

Eligibility

1. A candidate who has passed the Master of Degree in Agricultural of this University or of any other University recognised by the Syndicate as equivalent thereto and who has subsequently worked for a minimum period of three years after registration for the Ph. D. Degree in an approved institution or department may present himself for the Degree of Doctor of Philosophy (Ph. D.)

Provided that graduates of other Universities shall not be eligible to submit theses for the Degree unless they have resided within the University limits or area, for three years, subsequent to registration, and have pursued a course of research in the University or constituent or affiliated college thereof for this period.

Registration

2. A candidate for the Degree shall apply to the Registrar for Registration in the prescribed form together with the fee prescribed so as to reach the Registrar on any day in the month of January or August each year and should furnish the following particulars:

(a) his qualifications and previous study and research, if any;

(b) the special subject in which he intends to prosecute research. The subject of research shall be one which relates to the main branch of knowledge chosen for the Post-graduate Degree.

(c) the name of the Teacher of this University or the teacher of an Institution recognised by or affiliated to this University, under whose supervision and guidance he proposes to work and the name of the laboratory where necessary or Institute or College where he proposes to conduct his research, accompanied by the written consent of the teacher, agreeing to supervise his work and in the case of candidate proposing to do work in an Institution from the Head of the Institution permitting him to work.

3. Every applicant who satisfies all the conditions stipulated shall after approval by the Syndicate be registered as a candidate for the Degree.

Approval of Institutions

4. The institutions for purposes of approval for research shall ordinarily be Departments of the University or Colleges affiliated to or recognised by the University as of Post-graduate standard in the branch of study concerned or special Departments of Professional Colleges. The Syndicate however, may in regard to Colleges not affiliated in Post-graduate Degree courses, recognise particular Departments of study provided it is satisfied both with regard to the Laboratory facilities available and the qualifications of the person for supervision, such recognition being for a period of time and renewable subject to such conditions as the Syndicate may lay down. In regard to subjects for which research facilities are not

available within the University, it shall be competent for the Syndicate to recognise, in individual merits, Research Institutes or Departments of an All-India character and the Teachers or officers employed therein for purposes of enabling persons to pursue research in such Institutes or Departments with a view to qualifying for the Ph.D. Degree of this University.

Examination Part I

5. At the end of the first year of the period of work a candidate shall appear before a Board of the Faculty appointed by the Syndicate. The Board shall test the candidate's attainments on the methodology of research.

The Board shall report on the candidates fitness to proceed with the course for the Ph.D. Such candidates as do not satisfy the Board may be referred back for a further period of six months.

Submission of Thesis

6. After the expiration of the period of research for two years subsequent to his satisfying the Board, every candidate shall submit with his application for the Degree four copies of the thesis, printed or type-written, embodying the results on the research carried out by him, together with the prescribed fee. Every candidate shall also submit with his application and thesis a certificate from the teacher under whom he worked that the thesis submitted is a record of research work done by the candidate during the period of study under him, and that the thesis has not previously formed the basis for the award to the candidate of any Degree, Diploma, Associateship, Fellowship or other simlar title, together with a statement from the teacher indicating the extent to which the thesis represents independent work on the part of the candidate. If the thesis submitted has formed in part the basis for

the award of a previous research degree, the candidate shall clearly set forth in a preface or written statement the portion or portions which have formed the basis for the award of the previous Degree.

Date of submission of Application and thesis.

7. (*i*) The application for the Degree and the thesis must be forwarded so as to be received by the Registrar not later than the last day in the month of January or August and after completion of the research work in accordance with the conditions laid down in Regulation 2 *supra*.

(*ii*) A candidate may also forward as supplementary papers to his thesis printed copies of any contribution or contributions to the knowledge of his subject or of any cognate branch of science he may have published in Journals or Periodicals with the names of such Journals or Periodicals.

Value of thesis by examination

8. The thesis shall be referred by the Syndicate for report to a Board of Examiners consisting of not less than two persons.

The Board of Examiners who value the thesis shall report on the merit of the candidate for the Degree as 'Commended' or 'Highly commended' or 'Not commended'.

The Board of Examiners appointed to report on the thesis may, at their discretion, ask a candidate to submit to an Oral examination, provided, however, it shall be competent for the Syndicate in the case of a

Board of Examiners outside India to arrange for the holding of an Oral Examination by a Board of Examiners in India.

After receipt from the Board or Boards of Examiners the report on the thesis and on the oral examination, if any, the Syndicate shall decide whether the candidate has qualified for the Degree or not and publish the result.

Number of chances.

9. A candidate shall not be permitted to submit a thesis for the Degree on more than two occasions; provided however, it shall be open to the Syndicate if the Board of Examiners so recommend, to permit the candidate to submit a thesis on a third occasion.

Publication of thesis.

10. The thesis, whether approved or not, shall not be published without the sanction of the Syndicate and the Syndicate may grant permission for the publication under such conditions as it may impose.

Exceptions.

11. Teachers who are working in the University or Teachers in Colleges affiliated to or recognised by the University and who are Heads of Departments in Colleges may be permitted to submit a thesis for the Degree without working under supervision; provided however, they register themselves for the Degree as specified in Regulation 2 supra; and provided further the Syndicate is satisified with the facilities available for research in such Institutions. This concession shall not apply to teachers who are not Heads of Departments.

Transitory provision

12. Candidates registered for the Degree under the Regulations in force prior to August 1958 shall be permitted to supplicate for the Degree under the Regulations in force for a maximum period of five years from the date of registration.

13. A candidate who has qualified for the Master's Degree by research of this University shall be exempted from one year of course for the Ph.D. Degree and from the examination on the 'methodology of research' (Part I).

(7)

Degree of Doctor of Philosophy (Ph.D.)

Regulations

(Faculty of Veterinary Science)

Eligibility.

1. A candidate who has passed the M. V. Sc Degree Examination of this University or of any other University recognised by the Syndicate as equivalent thereto, and who has subsequently worked for a minimum period of three years after registration for the Ph.D. Degree in an approved institution or department may present himself for the Degree of Doctor of Philosophy (Ph.D.)

Provided that graduates of other Universities shall not be eligible to submit theses for the Degree unless they have resided within the University limits or areas for three-years, subsequent to registration, and have pursued a course of research in the University or constituent or affiliated college thereof approved for this purpose for this period.

Registration

2. A candidate for the Degree shall apply to the Registrar for Registration in the prescribed form together with the fee prescribed so as to reach the Registrar on any day in the month of January or August each year and should furnish the following particulars:

(*a*) his qualifications and previous study and research, if any;

(*b*) the special subject, in which he intends to prosecute research. The subject of research shall be one which relates to the main branch of knowledge chosen for the Post-graduate Degree.

(*c*) the name of the Teacher of this University or the teacher of an Institution recognised by or affiliated to this University, under whose supervision and guidance he proposes to work and the name of the laboratory where necessary or Institute or College where he proposes to conduct his research, accompanied by the written consent of the teacher agreeing to supervise his work and in the case of the candidate proposing to do work in an Institution from the Head of the Institution permitting him to work.

3. Every applicant who satisfies all the conditions stipulated shall after approval by the Syndicate be registered as a candidate for the Degree.

Approval of Institutions.

4. The institutions for purposes of approval for research shall ordinarily be Departments of the University or Colleges affiliated to or recognised by the University as of Post-graduate standard in the branch of study concerned or special

Departments of Professional Colleges. The Syndicate however, may in regard to Colleges not affiliated in Post-graduate Degree courses, recognise particular Departments of study provided it is satisfied both with regard to the Laboratory facilities available and the qualifications of the person for supervision, such recognition being for a period of time and renewable subject to such conditions as the Syndicate may lay down. In regard to subjects for which research facilities are not available within the University, it shall be competent for the Syndicate to recognise, in individual merits, Research Institutes or Departments of an All-India character and the Teachers or officers employed therein for purposes of enabling persons to pursue research in such Institutes or Departments with a view to qualifying for the Ph.D. Degree of this University.

Examination Part I.

5. At the end of the first year of the period of work a candidate shall appear before a Board of the Faculty appointed by the Syndicate. The Board shall test the candidate's attainments on the methodology of research.

The Board shall report on the candidates fitness to proceed with the course for the Ph.D. Such candidates as do not satisfy the Board may be referred back for a further period of six months.

Submission of thesis.

6. After the expiration of the period of research for two years subsequent to his satisfying the Board, every candidate shall submit with his application for the Degree four copies of the thesis, printed or type-written, embodying the results of the research carried out by him, together with the prescribed fee. Every candidate shall also submit with

his application and thesis a certificate from the teacher under whom he worked that the thesis submitted is a record of research work done by the candidate during the period of study under him, and that the thesis has not previously formed the basis for the award to the candidate of any Degree, Diploma, Associateship, Fellowship or other similar title, together with a statement from the teacher indicating the extent to which the thesis represents independent work on the part of the candidate. If the thesis submitted has formed in part the basis for the award of a previous research degree, the candidate shall clearly set forth in a preface or written statement the portion or portions which have formed the basis for the award of the previous Degree.

Date of submission of application and thesis.

7. (i) The application for the Degree and the thesis must be forwarded so as to be received by the Registrar not later than the last day in the month of January or August and after completion of the research work in accordance with the conditions laid down in Regulation 2 *supra.*

(ii) A candidate may also forward as supplementary papers to his thesis printed copies of any contribution or contributions to the knowledge of his subject or of any cognate branch of science he may have published in Journals or Periodicals with the names of such Journals or Periodicals.

Value of thesis by examination

8. The thesis shall be referred by the Syndicate for report to a Board of Examiners consisting of not less than two persons.

The Board of Examiners who value the thesis shall report on the merit of the candidate for tre Degree

as 'Commended' or 'Highly commended' or 'Not commended'.

The Board of Examiners appointed to report on the thesis may, at their discretion, ask a candidate to submit to an Oral examination, provided, however, it shall be competent for the Syndicate in the case of a Board of Examiners outside India to arrange for the holding of an Oral Examination by a Board of Examiners in India.

After receipt from the Board or Boards of Examiners the report on the thesis and on the oral examination, if any, the Syndicate shall decide whether the candidate has qualified for the Degree or not and publish the result.

Number of chances

9. A candidate shall not be permitted to submit a thesis for the Degree on more than two occasions; provided however, it shall be open to the Syndicate if the Board of Examiners so recommend, to permit the candidate to submit a thesis on a third occasion.

Publication of thesis

10. The thesis, whether approved or not, shall not be published without the sanction of the Syndicate and the Syndicate may grant permission for the publication under such conditions as it may impose.

Exceptions

11. Teachers who are working in the University or Teachers in colleges affiliated to or recognised by the University and who are Heads of Departments in Colleges may be permitted to submit a thesis for the Degree without working under supervision; provided

however, they register themselves for the Degree as specified in Regulation 2 supra; and provided further the Syndicate is satisfied with the facilities available for research in such Institutions. This concession shall not apply to teachers who are not Heads of Departments.

Transitory Provision

12. Candidates registered for the Degree under the Regulations in force prior to August 1958 shall be permitted to supplicate for the Degree under the Regulations in force for a maximum period of five years from the date of registration.

13. A candidate who has qualified for the Master's Degree by research of this University shall be exempted from one year of course for the Ph.D. Degree and from the examination on the 'methodology of research' (Part I.).

(8)

Degree of Doctor of Philosophy (Ph.D.)

Regulations

(Faculty of Technology)

Eligibility

1. A candidate who has qualified for the M. Sc Degree Examination in the Faculty of Technology of this University or of any other University recognised by the Syndicate as equivalent thereto, and who has subsequently worked for a minimum period of three

years after registration for Ph.D. Degree in an approved institution or department may present himself for the Degree of Doctor of Philosophy (Ph.D.)

Provided that graduates of other Universities shall not be eligible to submit theses for the Degree unless they have resided within the University limits or area, for three years, subsequent to registration, and have pursued a course of research in the University or constituent or affiliated college thereof for this period.

NOTE: Till Such time as Masters Degree in Technology has been instituted candidates can qualify for the first degree or M.Sc. by research and examination under the Old Regulations and then come for the Ph.D. Degree.

Registration

2. A candidate for the Degree shall apply to the Registrar for Registration in the prescribed form together with the fee prescribed so as to reach the Registrar on any day in the month of January or August each year and should furnish the following particulars:

(a) his qualifications and previous study and research, if any;

(b) the special subject in which he intends to prosecute research. The subject of research shall be one which relates to the main branch of knowledge chosen for the Post-graduate Degree.

(c) the name of the Teacher of this University or the teacher of an Institution recognised by or affiliated to this University, under whose

supervision and guidance he proposes to work and the name of the laboratory where necessary or Institute or College where he proposes to conduct his research, accompanied by the written consent of the teacher, agreeing to supervise his work and in the case of the candidate proposing to do work in an Institution from the Head of the Institution permitting him to work.

3. Every applicant who satisfies all the conditions stipulated shall after approval by the Syndicate be registered as a candidate for the Degree.

Approval of Institutions.

4. The institutions for purposes of approval for research shall ordinarily be Departments of the University or Colleges affiliated to or recognised by the University as of Post-graduate standard in the branch of study concerned or special Departments of Professional Colleges. The Syndicate however, may in regard to colleges not affiliated in Post-graduate Degree courses, recognise particular Departments of study provided it is satisfied both with regard to the Laboratory facilities available and the qualifications of the person for supervision, such recognition being for a period of time and renewable subject to such conditions as the Syndicate may lay down. In regard to subjects for which research facilities are not available within the University, it shall be competent for the Syndicate to recognise, in individual merits, Research Institutes or Departments of an All-India character and the Teachers or officers employed therein for purposes of enabling persons to pursue

research in such Institutes or Departments with a view to qualifying for the Ph.D. Degree of this University.

Examination Part I.

5. At the end of the first year of the period of work a candidate shall appear before a Board of the Faculty apppinted by the Syndicate. The Board shall test the candidate's attainments on the methodology of research.

The Board shall report on the candidates fitness to proceed with the course for the Ph.D. Such candidates as do not satisfy the Board may be referred back for a further period of six months.

Submission of thesis.

6. After the expiration of the period of research for two years subsequent to his satisfying the Board, every candidate shall submit with his application for the Degree four copies of the thesis, printed or type-written, embodying the results of the research carried out by him, together with the prescribed fee. Every candidate shall also submit with his application and thesis a certificate from the teacher under whom he worked that the thesis submitted is a record of research work done by the candidate during the period of study under him, and that the thesis has not previously formed the basis for the award to the candidate of any Degree, Diploma, Associateship, Fellowship or other similar title, together with a statement from the teacher indicating the extent to which the thesis represents independent work on the part of the candidate. If the thesis submitted has formed in part the basis for the award of a previous research degree, the candidate shall clearly set forth in a preface or written statement the portion or portions

which have formed the basis for the award of the previous Degree.

Date of submission of application and thesis

7. (i) The application for the Degree and the thesis must be forwarded so as to be received by the Registrar not later than the last day in the month of January or August and after completion of the research work in accordance with the conditions laid down in Regulation 2 *supra.*

(ii) A candidate may also forward as supplementary papers to his thesis printed copies of any contribution or contributions to the knowledge of his subject or of any cognate branch of science he may have published in Journals or Periodicals with the names of such Journals or Periodicals.

Value of thesis by examination

8. The thesis shall be referred by the Syndicate for report to a Board of Examiners consisting of not less than two persons.

The Board of Examiners who value the thesis shall report on the merit of the candidate for the Degree as 'Commended' or 'Highly Commended' or 'Not Commended'.

The Board of Examiners appointed to report on the thesis may, at their discretion, ask a candidate to submit to an Oral examination, provided, however, it shall be competent for the Syndicate in the case of a Board of Examiners outside India to arrange for the holding of an Oral Examination by a Board of Examiners in India.

After receipt from the Board or Boards of Examiners the report on the thesis and on the oral examination, if any, the Syndicate shall decide whether the candidate has qualified for the Degree or not and publish the result.

Number of chances

9. A candidate shall not be permitted to submit a thesis for the Degree on more than two occasions; provided however, it shall be open to the Syndicate if the Board of Examiners so recommend, to permit the candidate to submit a thesis on a third occasion.

Publication of thesis

10. The thesis, whether approved or not, shall not be published without the sanction of the Syndicate and the Syndicate may grant permission for the publication under such conditions as it may impose.

Exceptions

11. Teachers who are working in the University or Teachers in Colleges affiliated to or recognised by the University and who are Heads of Departments in Colleges may be permitted to submit a thesis for the Degree without working under supervision; provided however, thay register themselves for the Degree as specified in Regulation 2 supra; and provided further the Syndicate is satisfied with the facilities available for research in such Institutions. This concession shall not apply to teachers who are not Heads of Departments.

Transitory Provision

12. Candidates regitered for the Degree under the Regulations in force prior to August 1958, shall be permitted to supplicate for the Degree under the Regulations in force for a maximum period of five years from the date of registration.

13. A candidate who has qualified for the Master's Degree by research of this University shall be exempted from one year of course for the Ph.D. Degree and from the examination on the 'methodology of research, (Part I).

CHAPTER LI

Degree of Doctor of Letters (D.Litt.)

(Common to the Faculties of Arts, Fine Arts, Teaching, Commerce and Oriental Learning.)

Eligibility

1. A Doctor of Philosophy of this University may present himself for the Degree of Doctor of Letters (D.Litt.), the highest Degree of this University in the Faculties of Arts, Fine Arts, Teaching, Commerce and Oriental Learning, two years after having qualified for the Degree of Ph.D.

Application and thesis

2. The candidate shall state in his application the special subject upon a knowledge of which he bases his qualification for the Doctorate. Such subject shall be one which relates to the main branch of knowledge chosen for the Preliminary Degree. If the thesis submitted has formed in Part the basis for the award of a previous research Degree, the candidate shall clearly set forth in a preface or written statement the portion or portions upon which has been based the award of the previous Degree. He shall submit with his application four copies of his thesis, which shall ordinarily be in the form of published work, or published papers or books, that contain original contribution to the advancement of knowledge.

Note.—A thesis must be on one main theme, and no candidate can submit as a thesis a series of unconnected papers. A series of connected papers can be submitted provided they form one connected theme; and additional papers can be submitted in support of the main thesis only on the understanding that the candidate indicates in the preface the main work, or memoir, or thesis upon which he bases his apllication.

Declaration

3. The thesis shall be accompanied by a declaration signed by the candidate that it has been composed by himself independently, and a certificate that the thesis has not previously formed the basis for the award of any Degree other than a Master's Degree or Ph.D. Degree, Diploma, Associateship, Fellowship or other similar title. If the thesis has not already been published, it shall be published by the candidate in such manner as the Syndicate shall approve.

Preface and notes

4. The candidate shall indicate generally, in a preface to his thesis and specially in notes, the sources from which his information is taken and the extent to which he has availed himself of the work of others; he shall also state in what respect his investigations appear to him to tend to the advancement of knowledge or otherwise form a valuable contribution to the literature of the subject dealt with.

Date for submission of application and thesis

5. The application and the thesis must be forwarded with the prescribed fee so as to reach the Registrar on any day in the month of January or August, and after the lapse of the period mentioned in Regulation 1 *supra*.

Additional papers

6. The candidate may with the thesis forward printed copies of any original contribution or contributions to the knowledge of his subject or of any cognate subject which may have been published by him independently or conjointly and upon which he relies in support of his candidature.

Evaluation of thesis

7. The thesis, together with any other contributions and papers submitted, shall be referred by the Syndicate, for report, to a Board of three Examiners. At the discretion of the Board of Examiners, the candidate may be asked to submit to an Oral Examination; provided, however, it shall be competent for the Syndicate, in the case of a Board of Examiners, outside India, to arrange for the holding of an Oral Examination by a Board of Examiners in India, should the first mentioned Board of Examiners consider this necessary prior to coming to a decision. After receipt from the Board or Boards of the report on the thesis and on the Oral Examination, if any, the Syndicate may decide whether the candidate has qualified for the Degree or not.

The decision of the Syndicate shall be published in the *Fort St. George Gazette.*

Number of chances

8. A candidate shall not be permitted to submit a thesis for the Degree on more than two occasions; provided, however, it shall be competent for the Syndicate after having taken into consideration the remarks of the Board of Examiners to permit a candidate to submit a thesis on a third occasion.

CHAPTER LII

Degree of Doctor of Science (D.Sc.)

(Common to all Science Faculties and the Faculties of Medicine, Engineering, Technology, Agriculture and Veterinary Science.)

Eligibility

1. A Doctor of Philosophy, in any of the above Faculties of this University may present himself for the Degree of Doctor of Science (D.Sc.), the highest Degree of this University in the above Faculties, two years after having qualified for the Degree of Ph.D.

Application and thesis

2. The candidate shall state in his application the special subject upon a knowledge on which he bases his qualification for the Doctorate. Such subject shall be one which relates to the branch of knowledge chosen for the Preliminary Degree. If the thesis submitted has formed in part of the basis for the award of a previous research Degree, the candidate shall clearly set forth in a preface or written statement the portion or portions upon which has been based the award of the previous degree. He shall submit with his application four copies of his thesis, which shall ordinarily be published work or published papers or books that make a distinct contribution to scientific knowledge.

Note.—A thesis must be on one main theme, and no candidate can submit as a thesis a series of unconnected papers. A series of connected papers can be submitted provided they form one connected theme; and additional papers can be submitted in support of the main thesis only on the understanding that the candidate indicate in the preface the main work, or memoir, or thesis upon which he bases his application.

Declaration

3. The thesis shall be accompanied by a declaration signed by the candidate that it has been composed by himself independently, and a certificate that the thesis has not previously formed the basis for the award of any Degree, other than a Master's Degree or Ph.D. Degree, Diploma, Associateship, Fellowship or other similar title. If the thesis has not already been published it shall be published by the candidate in such manner as the Syndicate shall approve.

Preface and notes

4. The candidate shall indicate generally in a preface to his thesis, and specially in notes, the sources from which his information is taken, and the extent to which he has availed himself of the work of others; he shall also state in what respect his investigations appear to him to tend to the advancement of Science or otherwise form a valuable contribution to the literature of the subject dealt with.

Date for submission of application and thesis

5. The application and the thesis must be forwarded with the prescribed fee so as to reach the Registrar on any day in the month of January or August, and after the lapse of the period mentioned in Regulation 1, *supra*.

Additional papers

6. The candidate may, with the thesis, forward printed copies of any original contribution or contributions to the knowledge of his subject or of any cognate subject which may have been published by him independently or conjointly and upon which he relies in support of his candidature.

Evaluation of thesis.

7. The thesis, together with any other contribution and papers submitted, shall be referred by the Syndicate, for report, to a Board of three Examiners. At the discretion of the Board of Examiners the candidate may be asked to submit to an Oral Examination; provided, however, it shall be competent for the Syndicate, in the case of a Board of Examiners outside India, to arrange for the holding of an Oral Examination by a Board of Examiners in India, should the first mentioned Board of Examiners consider this necessary prior to coming to a decision. After receipt from the Board or Boards of the report on the thesis and on the Oral Examination, if any, the Syndicate may decide whether the candidate has qualified for the Degree or not.

The decision of the Syndicate shall be published in the *Fort St. George Gazette.*

Number of chances.

8. A candidate shall not be permitted to submit a thesis for the Degree on more than two occasions; provided, however, it shall be cpmpetent for the Syndicate, after having taken into consideration the remarks of the Board of Examiners, to permit a candidate to submit a thesis on a third occasion.

CHAPTER LIII

Oriental Title Examinations.

1. The following shall be the Titles awarded:

(i) Siromani (added to Mimamsa, Vedanta, Nyaya, Vyakarana, Sahitya, Ayurveda and Jyotisha).

(ii) Vidvan.

(iii) (*a*) Afzal-ul-Ulama

(*b*) Munshi-i-Fazil

(*c*) Adib-i-Fazil

Titles. (*d*) Tabib-i-Kamil

(*e*) Afzal-ul-Atibba

(iv) (*a*) Malpan

(*b*) Soppar

2. (i) Candidates for Siromani shall take Sanskrit alone.

(ii) Candidates for Vidvan shall take

(*a*) Sanskrit and one of the following languages:

Subjects. Tamil, Telugu, Kannada, Malayalam, Marathi, Oriya, Hindi, selected at the option of the candidate; or

(*b*) One of the following languages as the main language with Sanskrit as a subsidiary language:

Tamil, Telugu, Kannada, Malayalam, Marathi, Oriya, Hindi;

(*c*) * * * * *

or

(*d*) One of the following languages:

Tamil, Telugu, Kannada, Malayalam.

(iii) (*a*) Candidates for Afzal-ul-Ulama shall take Arabic alone; or

(*b*) Candidates for Munshi-i-Fazil shall take Persian as the main language with Urdu as a subsidiary language; or

(*c*) Candidates for Adib-i-Fazil shall take Urdu as the main language with Persian, Tamil or Malayalam as a subsidiary language; or

(*d*) Candidates for Tabib-i-Kamil shall take Tibb-i-Unani in Persian as the main language with Urdu as a subsidiary language: or

(*e*) Candidates for Afzal-ul-Atibba shall take Tibb-i-Unani in Arabic as the main language with Urdu as a subsidiary language.

(iv) (*a*) Candidates for Malpan shall take Syriac;

or

(*b*) Candidates for Soppar shall take Syriac as the main language with Hebrew as a subsidiary language.

Preliminary qualification.

3. Candidates for the Oriental Title Examination shall have passed the Matriculation Examination of the University or an examination accepted by the Syndicate as equivalent thereto, or the Entrance Test prescribed, and shall have thereafter pursued a course of study for four academic years or twelve terms in a Constituent or an Affiliated College or an approved Oriental Institution.

Examination Preliminary and Final.

4. The course of studies for the Oriental Title Examination shall comprise a Preliminary and a Final Part.

Duration and Course of Studies.

5. The course for the Preliminary Part of the examination shall extend over a period of two academic years or six terms and shall be as follows:

I. *Siromani.* There shall be two divisions in the Preliminary, Part 1. General, and 2. Special.

1. The general division shall consist of (*a*) prescribed books relating to the elements of tarka Mimamsa and Vyakarna, and (*b*) prescribed Text-books, chosen from among the Mantras, Brahmanas, Upanishads the Grihya and Dharma Sutras and the Smritis.

2. The course in the special division shall consist of one of the following Branches of study taken by the candidate at his option:

(i) *Mimamsa Group.* Prescribed Text-books relating to Purvamimamsa, Veda, Srauta and Dharmasastra.

(ii) *Vedanta Group.* Prescribed Text-books relating to the *Bhashya Prasthana* of one of the three South Indian Schools of Vedanta, *viz.*: Advaita, Visishtadvaita and Dvaita.

(iii) *Nyaya Group*—Prescribed Text-books relating to the Nyaya and Vaiseshika Darsanas including select portions of Purvavada.

(iv) *Vyakarana Group*—Prescribed Text-books relating to advanced Vyakarana, including select portions of standard commentaries on the *Siddhantakaumudi*.

(v) *Sahitya Group*—Prescribed Kavyas and Natakas and a simple work in Poetics.

(vi) *Jyotisha Group*—Prescribed Text-books in Jyotisha and Ganita.

(vii) *Ayurveda Group*—Prescribed Text-books in Ayurveda and a certificate of having attended for one year the practice of a Hospital or Dispensary within the jurisdiction of this University, and approved beforehand by the Syndicate, under a recognised Ayurvedic Physician.

II. *Vidvan*—(*a*) The course in Sanskrit shall consist of prescribed Kavyas, Natakas, a simple work in Poetics, and a prescribed portion in Grammar.

The course in the selected language shall be (1) prescribed Text-books in Poetry and Prose; and (2) Composition in the selected language.

(*b*) The course in the selected language shall consist of (1) prescribed Text-books in Poetry and Prose; (2) prescribed Text-books relating to Grammar; and (3) Composition.

The course in Sanskrit shall consist of (1) prescribed Text-books in simple Poetry and Prose; (2) Elementary Grammar taught in relation to those Text-books; and (3) Translation from Sanskrit into the selected language.

(*c*) * * * * *

(*d*) The course shall consist of (1) prescribed Text-books in Poetry and Prose; (2) prescribed Text-books relating to Grammar; (3) Composition in the selected language; and (4) History of South India.

III. (*a*) *Afzal-ul-Ulama.*—The course shall consist of—

(1) Tafsir, Hadith and Usul-i-Hadith.

(2) Fiqh, 'Aqa'id and Mantiq.

(3) Prose and Poetry Text-books.

(4) History of Arabic Language and Literature.

(5) Translation from Arabic into Urdu, Tamil or Malayalam and *vice versa.*

(6) Grammar, Rhetoric and Prosody.

(*b*) *Munshi-i-Fazil.*—The course shall consist of—

(1) Persian Prose Text-books.

(2) Persian Poetry Text-books.

(3) Grammar, Rhetoric and Prosody.
(4) Islamic History.
(5) Prescribed Text-books in Urdu.
(6) Translation from Persian into Urdu and *vice versa*.

(c) *Adib-i-Fazil.*—The course shall consist of—

(1) Urdu Prose Text-books.
(2) Urdu Poetry Text-books
(3) Grammar, Rhetoric and Prosody.
(4) Islamic History.
(5) Prescribed Text-books in Persian.
(6) History of Urdu Language and Literature.

(d) *Tabib-i-Kamil.*—The course shall consist of—

(1) Kulliyath.
(2) Tashrihul A'da.
(3) Kimiyah and Manafi'ul-A'da.
(4) 'Ilmul Adwiyah wa Saidalah.
(5) Tarikhi Tib.
(6) Hifzani Sihat.

Candidates shall produce a certficate of having attended for one year the practice of a Unani Hospital or Dispensary within the jursdiction of this University and approved beforehand by the Syndicate, under a recognised Unani Physician.

(e) *Afzal-ul-Atibba.*—The course shall consist of—

(1) Kulliyath.
(2) Tashrihul A'da.
(3) Kimiyah and Manafi'ul-A'da.
(4) 'Ilmul Adwiyah wa Saidalah.
(5) 'Ilmus Sihhat.
(6) Tarkhi Tib.

Candidates shall produce a certificate of having attended for one year the practice of a Unani Hospital or Dispensary within the jurisdiction of this University and approved beforehand by the Syndicate, under a recognised Unani Physician.

IV (*a*) *Malpan.*—The course shall consist of—

(1) Prose Text-books.

(2) Poetry Text-books.

(3) History of the Syriac Language and Literature.

(4) Translation from Syriac into English, Tamil or Malayalam, and from English, Tamil or Malayalam into Syriac.

(5) Composition in Syriac.

(*b*) *Soppar*—The course in Syriac shall consist of—

(1) Syriac Prose.

(2) Syriac Poetry.

(3) Translation from Syriac into English, Tamil or Malayalam, and from English, Tamil or Malayalam into Syriac.

(4) Composition in Syriac.

The Course in Hebrew shall consist of—

(1) Hebrew Prose.

(2) Hebrew Poetry.

The examination papers on the Text-books may contain questions on Grammar also.

Scheme of Examination—Preliminary part

6. The scheme of Examination for the Preliminary Part shall be as follows:

I. *Siromani*—

		Hours	Marks
(1) Prescribed Text-books—General I	..	3	100
(2) Prescribed Text-books—General II	..	3	100
(3) Prescribed Text-books—General III	..	3	100
(4) Prescribed Text-books—Special I	..	3	100
(5) Prescribed Text-books—Special II	..	3	100
(6) Prescribed Text-books—Special III.	..	3	100
		Total ..	600

II. *Vidvan* (*a*)—

		Hours	Marks
(1) Prescribed Text-books in Sanskrit I	..	3	100
(2) Prescribed Text-books in Sanskrit II	..	3	100
(3) Prescribed Text-books in Sanskrit III	..	3	100
(4) Prescribed Text-books in the Selected Language I	..	3	100
(5) Prescribed Text-books in the Selected Language II	..	3	100
(6) Composition in the Selected Language	..	3	100
		Total ..	600

NOTE.—In regard to Tamil, the first paper on 'prescribed Text-books in the selected language' will be on 'prescribed Text-books in Poetry and Prose' and the second paper on 'prescribed Text-books in the selected language' will be on 'Grammar.'

Vidvan (b)—

		Hours	Marks
(1) Prescribed Text-books in the Main Language I	..	3	100
(2) Prescribed Text-books in the Main Language II	..	3	100
(3) Composition in the Main Language	..	3	100
(4) Grammar I	..	3	100
(5) Grammar II	..	3	100
(6) Sanskrit	...	3	100
	Total	...	600

Vidvan (c)— * * * * *

Vidvan (d)—

		Hours	Marks
(1) Prescribed Text-books I	..	3	100
(2) Do II	..	3	100
(3) Composition	..	3	100
(4) Grammar I	..	3	100
(5) Do II	..	3	100
(6) History of South India	..	3	100
	Total	..	600

III. (*a*) *Afzal-ul-Ulama*—

		Hours	Marks
(i)	(1) Tafsir, Hadith and Usul-i-Hadith ..	3	100
	(2) Fiqh, 'Aqa' id and Mantiq ..	3	100
	(3) Prose and Poetry Text-books ..	3	100
(ii)	(4) History of Arabic Language and Literature ..	3	100
	(5) Translation from Arabic into Urdu, Tamil or Malaya-lam and *vice versa* ..	3	100
	(6) Grammar, Rhetoric and Prosody ..	3	100
	Total ..		600

(*b*) *Munshi-i-Fazil*—

		Hours	Marks
(i)	(1) Persian Prose Text-books ..	3	100
	(2) Persian Poetry Text-books ..	3	100
	(3) Grammar, Rhetoric and Prosody ..	3	100
	(4) Islamic History ..	3	100
(ii)	(5) Prescribed Text-books in Urdu ..	3	100
	(6) Translation from Persian into Urdu and *vice versa* ..	3	100
	Total ..		600

(c) *Adib-i-Fazil*—		Hours	Mark
(i)	(1) Urdu Prose Text-books ..	3	100
	(2) Urdu Poetry Text-books ..	3	100
	(3) Grammar, Rhetoric and Prosody ..	3	100
(ii)	(4) Islamic History ..	3	100
	(5) Prescribed Text-books in Persian, Tamil or Malayalam ..	3	100
	(6) History of Urdu Language and Literature ..	3	100
	Total ...		600

(d) *Tabib-i-Kamil*—		Hours	Mark
(i)	(1) Kulliyath ..	3	100
	(2) Tashrihul A'da ..	3	100
	(3) Kimiyah and Manafi'ul A'da ..	3	100
	(4) 'Ilmul Adwiyah wa Saidalah ..	3	100
(ii)	(5) Tarikhi Tib ..	3	100
	(6) Hifzani Sihat ..	3	100
	Total ...		600

(e) *Afzal-ul-Atibba*—		Hours	Mark
(i)	(1) Kulliyath ..	3	100
	(2) Tashrihul A'da ..	3	100
	(3) Kimiyah and Manafi'ul A'da ..	3	100
	(4) 'Ilmul Adwiyah wa Saidalah ..	3	100
(ii)	(5) 'Illums Sihhat ..	3	100
	(6) Tarikhi Tib ..	3	100
	Total ...		600

IV. (*a*) *Malpan*—

	Hours	Marks
(1) Prose Text-books—Syriac ..	3	100
(2) Poetry Text-books—Syriac.	3	100
(3) History of the Syriac Language and Literature ..	3	100
(4) Translation from Syriac into Tamil or Malayalam or English ..	3	100
(5) Translation from English, Tamil or Malayalam into Syriac ..	3	100
(6) Composition in Syriac ..	.3	100
Total ..		600

(*b*) *Soppar*—

(1) Syriac Prose ..	3	100
(2) Syriac Poetry ...	3	100
(3) Translation from Syriac into Tamil or Malayalam or English ..	3	100
(4) Translation from English, Tamil or Malayalam into Syriac ..	3	100
(5) Composition in Syriac ..	3	100
(6) Hebrew Prose and Poetry ..	3	100
Total ..		600

Marks qualifying for a pass.

7. A candidate shall be declared to have passed the Preliminary Examination if he obtains not less than 35 per cent of the total marks and not less than 30 per cent of the marks in each division of the examination.

The Division shall be as follows:

I. *Siromani*—

(1) General part; (2) Special part

II. *Vidvan*—

(*a*) (1) Sanskrit; (2) Selected Language.

(*b*) (1) First three papers; (2) Last three papers (with a minimum of 25 per cent for Sanskrit).

(*c*) * * * * *

(*d*) (1) Papers 1, 2 and 6; (2) papers 3, 4 and 5.

III. (*a*) *Afzal-ul-Ulama*—

(1) first three papers;

(2) last three papers.

(*b*) *Munshi-i-Fazil*—

(1) first four papers;

(2) last two papers.

(*c*) *Adib-i-Fazil*—

(1) first three papers;

(2) last three papers.

(*d*) *Tabib-i-Kamil*—

(1) first four papers;

(2) last two papers.

(*e*) *Afzal-ul-Atibba*—

(1) first four papers;

(2) last two papers.

IV. (*a*) *Malpan*—

(1) first three papers;

(2) last three papers.

(*b*) *Soppar*—

(1) Papers 1, 2 and 6 (with a minimum of 25 per cent for Hebrew);

(2) papers 3, 4 and 5.

Classification of successful candidates.

8. Successful candidates in the Preliminary Examination shall be arranged in three classes:

The first, consisting of those who obtain not less than 60 per cent, the second, of those who obtain less than 60 per cent and not less than 50 per cent, and the third, of those who obtain less than 50 per cent of the total marks.

Exemption.

9. For the purpose of enabling him to appear for the Final Part under the conditions prescribed, a candidate who has passed Group D under Part III of the Intermediate Examination shall be considered to have passed the Preliminary Part of the Oriental Title Examination in the language or languages in which he has already passed in Group D.

Final part.

10. The course of studies and scheme of examination and marks for the Final Part shall be the same as for Part II of the B.O.L. (Pass) Degree, excluding the provision for General Indian History.

Passing in Preliminary before Final.

11. No candidate shall be admitted to the Final Part of the Examination unless he has passed the Preliminary Part and has thereafter undergone the prescribed course for two academic years or six terms.

Such candidates shall take for the Final Part of the Oriental Title course the same language or languages that were taken in the Preliminary Part.

Languages in which the Question papers will be set.

12. All the papers for the Oriental Title Examination (Preliminary and Final) shall be set and answered in the respective languages to which they relate, provided that the papers in Sanskrit as the subsidiary language for Vidvan (*b*) shall be set in Sanskrit and answered in the main language.

13. A candidate who has qualified for a Title in Oriental Learning of this University shall be permitted

Oriental Title holders Qualifying for another Title or for another subject in the same Title.

to appear for the Examination for a different Title or for a different subject in the same Title provided that the Syndicate is satisfied that he has undergone the prescribed course of study for the selected new Title or for the selected new subject in the same Title by attending an Oriental College for the prescribed period of not less than two academic years *or* six terms for the Preliminary and for the same period for the Final Division of the Course after passing the Preliminary Division.

Exemptions.

A candidate who has qualified for any of the Titles specified below shall be exempted from a part of the course of studies and examination, and shall pursue a course of study for one academic year *or* three terms for the Preliminary and for the same period for the Final Division, after passing the Preliminary Division :

Subject which the candidate has passed.	Subject which the candidate chooses.	Subject exempted.
I. (*a*) Any one of the subjects for the Siromani.	Any other subject for the Siromani.	General Part in the Siromani.
(*b*) One of the South Indian Schools of Vedanta for the Siromani.	Another South Indian School of Vedanta for the Siromani.	General Part in the Siromani, and also the subjects in B.O.L. Part II Gr. I Special (*b*) (2) for the Final.
II. Any Subjects for the Siromani.	Vidvan (*a*) or (*b*)	Sanskrit Part.
III. Vidvan (*a*)	Vidvan (*b*)	Sanskrit Part.
IV. Vidvan (*b*) or (*d*)	Vidvan (*a*).	Selected Language Part.
V. Munshi-i-Fazil	Adib-i-Fazil.	Persian as subsidiary.
VI. Adib-i-Fazil	Munshi-i-Fazil.	Urdu as subsidiary.

14. Candidates who appeared for the Preliminary and/or Final Part of the Oriental Title Examination under the Old Regulations and failed therein shall be permitted to appear for the respective Part or Parts of the corresponding Oriental Title Examination under the Revised Regulations; provided, however, that candidates who appeared for the Vidvan Title Examination under the Old Regulation 7-C may be permitted to appear for the Examination for Vidvan (*b*) or (*d*) under the Revised Regulations.

CHAPTER LIV

Degree of Bachelor of Oriental Learning (Pass)

Conditions of admission.

1. Candidates for the B.O.L. Degree Examination shall be required to have passed the Intermediate Examination in Arts and Science of this University with Group D, or an examination accepted by the Syndicate as equivalent thereto and to have subsequently undergone a prescribed course of study in a Constituent or an Affiliated College for a period of not less than two academic years or six terms.

Course of study.

2. The course for the B.O.L. Degree shall comprise the following subjects according to syllabuses to be prescribed from time to time:

Part I—English.—To be studied for one academic year or three terms.

Part II—A. General Indian History, and

B. One of the following Groups to be studied for a period of two academic years or six terms:

Group I.—Sanskrit with one of the following as an optional subject:

(*a*) Mimamsa, (*b*) Vedanta, (*c*) Nyaya (*d*) Vyakarana, (*e*) Sahitya, (*f*) Jyotisha or (*g*) Ayurveda

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* *Note*:—The B.O.L. Degree Course is not now conducted.

The Course of Studies and scheme of examination and marks for Part II of the B.O.L. (Pass) Degree, excluding the Provision for General Indian History, shall however be applicable to the Final Part of the Oriental Title examination.

Group II.—(*a*) Sanskrit and one of the following languages at the option of the candidates: Tamil, Telugu, Kannada, Malayalam, Marathi, Oriya and Hindi

or

(*b*) One of the following languages as the main language with Sanskrit as a subsidiary language: Tamil, Telugu, Kannada, Malayalam, Marathi, Oriya and Hindi.

(*c*) * * * *

or

(*d*) One of the following languages: Tamil, Telugu, Kannada and Malayalam.

Group III.—(*a*) Arabic; (*b*) Persian and Urdu; (*c*) Urdu and one of the following languages selected at the option of the candidate: Persian, Tamil, Malayalam, (*d*) Tibbi-i-Unani in Persian and Urdu, *or* (*e*) Tibbi-i-Unani in Arabic and Urdu.

Group IV—(*a*) Syriac *or* (*b*) Syriac as the main language with Hebrew as a subsidiary language.

Part I—English—(1) The study in detail of certain prescribed text-books, and (2) the study of certain books prescribed for perusal.

Part II—A. General Indian History.

B. *Group I*—

General—

History of Sanskrit Language and Literature.

Special—

(i) (*a*) (1) Prescribed text-books relating to Purva-mimamsa.

(2) Application of Mimamsa to Vedic Exegesis and to the proper comprehension of the social and legal aspects of the Dharmasastras.

(*b*) (1) Prescribed text-books relating to the *Veda Prasthana* of one of the three South Indian Schools of Vedanta, *viz.*: Advaita, Visishtadvaita and Dvaita.

(2) Prescribed text-books relating to Yoga, Sankhya and the elements of the three South Indian Schools of Vedanta.

(*c*) Prescribed text-books relating to Nyaya and Vaiseshika Darsanas including select portions of *Uttara vada* and *Sabdabodha* works in Nyaya and Mimamsa.

(*d*) Prescribed text-books relating to advanced Vyakarana, including *Sabdabodha* works in Vyakarana and select portions of the *Mahabhashya* and standard commentaries on the *Siddhantakaumudi*.

(*e*) (1) Prescribed text-books relating to Grammar, Prosody and Poetics.

(2) Prescribed text-books of an advanced character, relating to Alamkara Sastra.

(*f*) Prescribed text-books of an advanced character in Jyotisha and Ganita.

(*g*) Prescribed text-books of an advanced character in Ayurveda and a certificate of having attended for two years the practice of a hospital or dispensary within the jurisdiction of this University and approved beforehand by the Syndicate, under a recognised Ayurvedic physician.

(ii) Essay on subjects connected with the Special Part.

Group II—

(*a*) Sanskrit—(1) History of Sanskrit Language and Literature; and (2) Prescribed text-books relating to Grammar, Prosody and Poetics.

Selected Language—(1) Prescribed text-books and (2) Prescribed text-books relating to Grammar, Prosody and Poetics.

(*b*) Selected Language—(1) Prescribed text-books; (2) Prescribed text-books relating to Advanced Grammar, Prosody and Poetics; and (3) History of the Language and Literature.

Sanskrit—(1) Prescribed text-books in Kavyas and Natakas; and (2) Elementary Prosody and Poetics taught in relation to the text-books under (1).

(*c*) * * * *

(*d*) (1) Prescribed text-books; (2) Prescribed text-books relating to Advanced Grammar, Prosody and Poetics; (3) History of the Language and Literature and (4) Inscriptions.

Group III—

(*a*) (1) Tafsir, Hadith and Ilmul Hadith.

(2) Fiqh, Usual-ul-Fiqh and 'Ilmul Kalam.

(3) Prose and Poetry text-books.

(4) Islamic History.

(5) Falsfah and Balaghat.

(6) History of Arabic Language and Literature.

(*b*) *Part I—Persian*—

(1) Persian Prose text-books.

(2) Persian Poetry text-books.

(3) History of Persian Language and Literature.

(4) Islamic History with particular reference to Persia.

Part II—Urdu—

(5) Urdu text-books.

(6) Translation from Persian into Urdu and *vice versa*.

(c) *Part I—Urdu—*

(1) Urdu Prose text-books.

(2) Urdu Poetry text-books.

(3) Islamic History.

(4) History of Urdu Language and Literature.

(5) Grammar, Rhetoric and Prosody.

(6) One Author.

Part II—Persian, Tamil or Malayalam—

(7) Prescribed text-books in Persian or Tamil or Malayalam.

(d) Prescribed books of an advanced character in Tibb-i-Unani in Persian and Urdu and a certificate of having attended for two years the practice of a Unani Hospital or Dispensary within the jurisdiction of this University and approved beforehand by the Syndicate, under a recognised Unani Physician.

(e) Prescribed books of an advanced character in Tibb-i-Unani in Arabic and Urdu and a certificate of having attended for two years the practice of a Unani Hospital or Dispensary within the jurisdiction of this University and approved beforehand by the Syndicate under a recognised Unani Physician.

The prescribed text-books shall comprise the following subjects:

(1) Kulliyath and Kimiyah.

(2) Tashrihul A'za wa Manafi'ul A'za.

(3) 'Illmu Adwiyah and 'Ilmus saidalah.

(4) Tarikhi Tib.

(5) 'Ilmul Tashkhis.

(6) ' Ilmul Amrad wa Jarathim.

(7) Tibb-i-Qanuni.

(8) Mu'alijat.

(9) 'Ilmul Qabilah.

Group IV

(*a*) (1) Prescribed text-books in Prose.

(2) Prescribed text-books in Poetry.

(3) History of Syriac Language and Literature.

(4) Translation from Syriac into English, Tamil or Malayalam and from English, Tamil or Malayalam into Syriac.

(5) Composition in Syriac.

The examination papers on the text-books may also contain questions on Grammar.

(*b*) Syriac as the Main subject shall include

(1) Syriac Prose.

(2) Syriac Poetry.

(3) Translation from Syriac into English, Tamil or Malayalam, and from English Tamil or Malayalam into Syriac.

(4) Composition in Syriac.

Herbrew as a subsidiary subject shall consist of—

(1) Hebrew Prose.

(2) Hebrew Poetry.

The examination papers on the text-books may also contain questions on Grammar.

Scheme of Examination 3. The scheme of examination shall be as follows:

***Part I—English.**

		Hours	*Marks*
English Prose	..	3	100
English Composition	..	3	100
	Total ..		200

* *Note*:—These two papers shall be the same as those for the B.A. (Honours) Degree Examination—Part I—Preliminary.

Part II—The examination shall consist of one paper on †General Indian History and six papers in the particular language or languages selected.

		Hours	Marks
A.	General Indian History ..	3	100

B. *Group I*—There shall in the general part be one paper on the History of Sanskrit Language and Literature, and in the Special part four papers on the Prescribed Text-books, and one paper on Essay.

Scheme of Examination.

			Hours	Marks
(1)	History of Sanskrit Language and Literature	...	3	100
(2)	Prescribed Text-books Special	I	3	100
(3)	Do.	II	3	100
(4)	Do.	III	3	100
(5)	Do.	IV	3	100
(6)	Essay	...	3	100
		Total	...	600

Groups II (*a*)—There shall in Sanskrit be two papers on the prescribed text-books, and one paper on the History of Sanskrit Language and Literature. In the selected Language there shall be two papers on the prescribed text-books and one paper on Grammar, Prosody and Poetics.

† The paper on General Indian History will be common with B.A. Group (iv-a).

Scheme of Examination

	Hours	*Marks*
(1) Prescribed text-books in Sanskrit I	3	100
(2) Do II	3	100
(3) History of Sanskrit Language and Literature ..	3	100
(4) Prescribed text-books in the selected Indian Language I ..	3	100
(5) Prescribed text-books in the selected Indian Language II ..	3	100
(6) Grammar, Prosody and Poetics ..	3	100
Total ..		600

Note. In regard to Tamil, the first paper on the 'prescribed text-books in the selected Indian Language' will be on 'Poetical texts relating to Sangam Literature' and the second paper on 'prescribed text-books in the selected Indian Language' will be on 'Poetical texts relating to later Literature.'

Group II (b)—There shall in Sanskrit be one paper, and in the selected Language there shall be two papers on the prescribed text-books, one paper on the History of Language and Literature, one paper on Grammar, and one paper on Prosody and Poetics.

Scheme of Examination

	Hours	*Marks*
(1) Prescribed text-books in the Language I ..	3	100
(2) Prescribed text-books in the Language II ..	3	100
(3) History of Language and Literature.	3	100
(4) Advanced Grammar, Prosody and Poetics I ..	3	100
(5) Advanced Grammar, Prosody and Poetics II ..	3	100
(6) Sanskrit ..	3	100
Total ...		600

Group II (c) * * * *

Group II (d). There shall be two papers on prescribed text-books, two papers on Advanced Grammar, Prosody and Poetics, one paper on the History of Language and Literature and one paper on Inscriptions.

Scheme of Examination

		Hours	Marks.
(1) Prescribed text-books I	..	3	100
(2) Do. II	..	3	100
(3) Advanced Grammar, Prosody and Poetics I	..	3	100
(4) Advanced Grammar, Prosody and Poetics II	...	3	100
(5) History of Language and Literature		3	100
(6) Inscriptions	...	3	100
		Total ..	600

Group III—The scheme of examination shall be as follows:

Scheme of Examination

		Hours	Marks
(a) (1) Tafsir, Hadith and Ilmul-Hadith		3	100
(2) Fiqh, 'Usul'-ul-Fiqh and Ilmul-Kalam	..	3	100
(3) Prose and Poetry text-books	..	3	100
(4) History of Arabic Language and Literature	...	3	100
(5) Falsafah and Balaghat	...	3	100
(6) Islamic History	..	3	100
		Total ..	600

	Hours	Marks
(*b*) (1) Persian Prose text-books ..	3	100
(2) Persian Poetry text-books ..	3	100
(3) History of Persian Language and Literature ..	3	100
(4) Islamic History with particular reference to Persia ..	3	100
(5) Urdu texts ..	3	100
(6) Translation from Persian into Urdu and *vice versa* ..	3	100
Total ..		600

(*c*) (1) Urdu Prose text-books ..	3	100
(2) Urdu Poetry text-books ..	3	100
(3) Islamic History ..	3	100
(4) Prescribed text-books in Persian Tamil or Malayalam ..	3	100
(5) History of Urdu Language and Literature ..	3	100
(6) One of the following authors: 1. Shibli. 2. Hali. 3. Sarshar. 4. Sir Sayyid. 5. Iqbal. 6. Sharar.	3	100
Total ..		600

(*d*) (1) 'Ilmul Tashkhis ..	3	100
(2) Mu'alijat—General ..	3	100
(3) Do. 'Ilmul Jarahat ..	3	100
(4) 'Ilmul Amrad wa Jarathim ..	3	100
(5) Amrad-i-Niswan wa Sibyan wa 'Ilmul Qabilah ..	3	100
(6) Tibbi Qanuni wa 'Ilmul Sumum		100
Total ..		600

		Hours	Marks
(e)	(1) 'Ilmul Tashkhis ..	3	100
	(2) Mu'alijat—General ..	3	100
	(3) Do. 'Ilmul Jarahat ..	3	100
	(4) 'Ilmul Amrad wa 'Ilmul Jarathim	3	100
	(5) 'Ilmul Amrad-al-atfal-wan Nis-wan wa 'Ilmul Qabilah ..	3	100
	(6) Tibbi Qanuni aw 'Ilmul Sumum	3	100
	Total ..		600

Group IV (a)— There shall in Syriac be two papers on prescribed text-books, one paper on the History of the Syriac Language and Literature, two papers on Translation from Syriac into English, Tamil or Malayalam and *vice versa*, and one paper on Composition in Syriac.

Scheme of Examination.

	Hours	Marks
(1) Prose text-books—Syriac ..	3	100
(2) Poetry text-books—Syriac ..	3	100
(3) History of the Syriac Language and Literature ..	3	100
(4) Translation from Syriac into Tamil or Malayalam or English ..	3	100
(5) Translation from English, Tamil or Malayalam into Syriac ..	3	100
(6) Composition in Syriac ..	3	100
Total ..		600

Group IV (b)—There shall in Syriac be two paper on prescribed text-books, two papers on Translation from Syriac into English, Tamil or Malayalam and *vice versa*, one paper on Composition in Syriac and one paper on prescribed text-books in Hebrew.

Scheme of Examination

		Hours	Marks
(1)	Syriac Prose ..	3	100
(2)	Syriac Poetry ..	3	100
(3)	Translation from English, Tamil or Malayalam into Syriac ..	3	100
(4)	Translation from Syriac into English, Tamil or Malayalam	3	100
(5)	Composition in Syriac ..	3	100
(6)	Hebrew Prose and Poetry ..	3	100
		Total ..	600

Eligibility for Degree—when

4. No candidate shall be eligible for the Degree of Bachelor of Oriental Learning until he has completed the course of study prescribed and has passed the examination in the subjects prescribed for the course in Regulations 2 and 3, *supra*.

Part I Examination may be taken in first year.

5. A candidate for the B.O.L. Degree Examination may present himself for Part I at the end of the first year of the course and thereafter may at any time at his option present himself for the Whole or for either Part.

Passing minimum.

6. A candidate shall be declared to have passed Part I of the examination if he obtains not less than 35 per cent of the total marks.

A candidate shall be declared to have passed Part II of the examination if he obtains not less than 35 per cent of the total marks and 30 per cent in each division.

The Divisions shall be as follows:

In all the Goups, General Indian History shall be a separate division.

Group I—

(1) General Part; (2) Special Part.

Group II—

(*a*) (1) Sanskrit; (2) Selected Language.

(*b*) (1) First three papers; (2) last three papers (with a minimum of 25 per cent for Sanskrit).

(*c*) * * * * *

(*d*) (1) Text-books and Inscriptions.

(2) Grammar and History of Language and Literature.

Group III—

(*a*) Afzal-ul-Ulama—

(1) First three papers; (2) last three papers.

Divisions of the subjects for examination.

(*b*) Munshi-i-Fazil—

(1) First four papers; (2) last two papers.

(*c*) Adib-i-Fazil—

(1) First three papers; (2) last three papers (with 25 per cent minimum in the fourth paper).

(*d*) Tabib-i-Kamil—

(1) First four papers; (2) last two papers.

(*e*) Afzal-ul-Atibba—

(1) First four papers; (2) last two papers.

Group IV—

(*a*) Malpan—

(1) First three papers; (2) last three papers.

(b) Soppar—

(1) Papers 1, 2 and 6 (with a minimum of 25 per cent in Paper 6) (2) Papers 3, 4 and 5.

Classification of successful candidates.

7. There shall be separate lists of successful candidates in each Part. Candidates obtaining not less than 60 per cent of the total marks in Part I shall be declared to have passed with distinction in that Part.

In Part II, candidates who obtain not less than 60 per cent of the total marks shall be placed in the first class, those who obtain less than 60 per cent, but not less than 50 per cent of the total marks shall be placed in the second class, and all the other successful candidates shall be placed in the third class.

Exemption

8. A candidate who has qualified for the B.A. or B.Sc. (Pass or Honours), or has passed only Part I of the B.A. or B.Sc. (Pass) or (Honours), or B.O.L. (Honours) Examination of this University, shall be exempted from the course and examination in Part I of the B.O.L. Degree. He shall be credited with a pass in that Part.

Language in which question papers will be set.

9. All the papers for the B.O.L. Degree Examination under Part II (except the paper on General Indian History) shall be set and answered in the respective languages to which they relate; provided that papers in Sanskrit as a subsidiary language for Group II (b) shall be set in Sanskrit and answered in the respective main language.

B.O.L. (Pass) Degree holder qualifying for another Optional Branch.

10. A candidate who has qualified for the B.O.L. (Pass) Degree Examination of this University shall be permitted to appear for a different Optional Group under Part II of the B.O.L. (Pass) Degree Examination, provided that the Syndicate is satisfied that he has undergone the prescribed course of study for the selected new group of optional subjects by attending a Constituent or an Affiliated College for a period of not less than one academic year or three terms. He shall be exempted from the course of study and examination under Part I—English and in General Indian History under Part II; he shall further be exempted from the course of study and examination in the subjects as defined below:

Optional subject which the candidate has passed.	Optional subject which the candidate chooses.	Subject exempted.
I. (*a*) Any subject in Group I.	Any other subject in Group I.	General Part.
(*b*) Anyone of the South Indian Schools of Vedanta in Group I.	Any other South Indian School of Vedanta in Group I.	General Part and also subjects in Gr. I Special (*b*) (2).
II. Any subject in Group I.	Group II (*a*) or (*b*).	Sanskrit Part.
III. Group II (*a*).	Group II (*b*).	Sanskrit Part.
IV. Group II(*b*) or (*d*)	Group II (*a*).	Selected Language Part
V. Group III (*b*).	Group III (*c*).	Persian Part.
VI. Group III (*c*).	Group III (*b*).	Urdu Part.

(Those candidates need not take Intermediate—Group D in the new language or subject.)

Exemptions.

11. Save as otherwise provided for in the Regulations of this Chapter, candidates who have completely passed the B.A., B.A. (Hons.), B.Sc. (Pass), B.Sc. (Hons.), B.Com. (Pass), or B.O.L. (Hons.) Degree Examinations and desire to proceed to the B.O.L. Degree Examination after putting in the prescribed attendance shall be exempted from being examined in English—Part I—of the B.O.L. Degree Examination.

12. A candidate permitted to appear for the examination under proviso (ii) of Regulation 9 (i) (v) of Chapter XL, shall be declared to have passed the examination in the Part or Parts, if he has obtained not less than 35 per cent of the marks in the examination in Part I or in Part II-A or in both as the case may be; and shall, on passing the examination in the above subject or subjects, be declared to have qualified for the B.O.L. Degree in the third class.

ENTRANCE TEST TO ORIENTAL TITLE COURSES.

(i) Siromani and Vidvan (*a*)

Entrance Test conducted by the Educational Departmen' of the Government of Madras.

(ii) Vidvan (*b*) and (*d*) Adib-i-Fazil, Malpan and Soppar.

Entrance Test shall be in the selected language or main language if there are two languages and shall consist of two papers set for the Intermediate Examination in Arts and Science in the corresponding language under Part II with the following modifications:—

(*a*) A few questions on Grammar shall be added in that part of the Intermediate (Part II) first paper intended for the candidates for the above Titles and

(*b*) the question on Translation in the Second paper for the Intermediate Examination shall be replaced by questions on Paraphrase or Composition.

(iii) Entrance Test in Arabic for Afzal-ul-Ulama and Afzal-ul-Atibba.

1959 & 1960

I. Prose:

1. Al-Azhar by Mohibb al Din al-Kahlib.
2. Al-Fakhir-fi-Adab al-Sultaniya by Ibn Taba Taba—First Chapter only.

oetry:

3. Qasidha Banat Su'ad.
4. Qasidha al-Burdh.

Grammar:

5. Al-Nahv al-Wadeh (Ibtidai)—3 Parts (Ma'arif Press, Cairo).

II. Diniyat:

1. Surah al-Anfal and al-Toubah.
2. Bughyat Kull Muslim min Sahib al Imam Muslim.
3. Risalah al-Toihid by Mohamed Abduhu.

(iv) Entrance Test in Persian for Munshi-i-Fazil and Tabib-i-Kamil.

1959 & 1960.

I. Prose and Poetry:

1. Ganjinae Adab by Ja'fari (Anwar Ahmedi Press, Allahabad).
2. Ghazliyat Hafix—First 15 Ghazals only.

Grammar:

3. Jami'ul Qawa'id.

II. Diniyat:

1. Mala budd minhu by Qadi Sanaulla of Panipet
2. Nafhat-aluns by Jami.

Portions to be studied—

Introduction and Biographies of:—

1. Zun-num misri.
2. Fuzail 'ibn Ayaz.
3. Ma'ruf Karkhi.
4. Ibrahim Adham.
5. Bishr Hafi.
6. Shaqiq Balkhi.
7. Bayazid.
8. Sahal ibn Abdullah Tastari.
9. Junaid.
10. Abdu Bakr Shibili.
11. Hallaj.
12. Qushairi.
13. Bahauddin Naqshband.
14. Shaikh Abdul Qadir Kili.
15. Shahabuddin Suharwardi.

3. Kimiya al-Sa'adab by al-Ghazzali.

Portions to be Studied:

1. Unwan Awwal; Dar Ma'rifat Khistan.
2. Unwan Duwwam dar Ma'rifat Haq.
3. Unwan Suwwam dar Ma'rifat Dunya.
4. Unwan Chaharrum Dar Ma'rifat Akhirat

ORIENTAL TITLES EXAMINATIONS

Text-books for the various Languages.

SANSKRIT

1959, 1960, 1961 & 1962

Siromani Title Examinations.

Preliminary.

GENERAL PART.

PAPER I

Viswanatha Panchanana-Muktavali with Dinakari for Subda Kanda

Gautama dharma sutras, first nine Pariccheda s.

Manu-Smriti, Chapter 9, Text only.

PAPER II.

Jaiminiyanyayamalavistra from beginning of the work to the end of pada 3 in Chapter III

Mimamsa Nyayaprakasa of Apodeva.

PAPER III.

Siddhantakaumudi—Purvardha only, omitting Taddhita.

Rg. Veda: Macdonell's Vedic Reader, I to X hymns (both inclusive), Text only.

Kathopanishad—Text only.

SPECIAL PART

BRANCH I—*Mimamsa.*

PAPER I.

Taittriya Samhita with Sayana's Bhasya, Khanda I, Prapathaka I Apasthamba Srauta-Sutra with Rudradatta's Vritti—Prasnas I to V both inclusive).

PAPER II.

Bhatta Dipika from beginning to end of the third Pada of the third Adhyaya (Chapters I-III).

Aitareya Brahmana with Sayana Bhasya, fourth Panchika.

PAPER III.

Bhatta Dipika from the fourth Pada of Chapter III (Nivita) to the end of Chapter VI.

Yagna Valkya Smriti with Mistakshara, omitting Prayas Chittadydya.

BRANCH II—*Vedanta.*

Advaita.—

PAPER I.

Brahma sutras with Sankara's Bhasya.

PAPER II.

Bhamati Catussutri.

Panchapadika with Vivarana, First Varnaka.

Mandukyopanishad with Gaudapada-Karikas and Sankara's Bhasya.

PAPER III.

Taittiriya Upanisad (whole), Chandogya (Adhyaya VI) and Brahadaranyaka Upanishads, Adhyaya I with Shankara's Bhasya.

Bhagavadgita with Sankara's Bhasya.

Visishtadvita.—

PAPER I.

Brahma sutras with Sri Bhasya.

PAPER II.

Bhagavadgita with Ramanuja's Bhasya.

Brahadaranyakopanishad with Rangaramanuja's Bhasya.

PAPER III.

Srutaprakasika—Jijnasadhikarana.

Dvaita.—

PAPER I.

Brahma sutras with Madhavacharya's Bhasya.

Tattvaprakasika of Jayatirtha.

PAPER II.

Gitatatparyanirnaya with Jayatirtha's Tika.

Madhva bhasya on the Brahadaranyakopanishad

PAPER III.

Madhvacharya's Anuvyakhya with Jayatirtha's Nyayasudha, Jijnasadhikarana only.

BRANCH III—*Nyaya*.

PAPER I.

Gautama's Nyaya sutras with Vatsyayana's Bhasya, Ch. I and II.

Kanada's Vaiseshika sutras, Text only.

PAPER II.

Jagadisa's Panchalaksani and Simhavyaghri

Gadadhara's Caturadasalaksani:

(*a*) From beginning up to the end of Dvitiyasvalaksana.

(*b*) Kutaghatitalaksana.

(*c*) Kutaghatitalaksana.

(*d*) Vyadhikarana-dharmavacchinnabhava-khandana grandha.

PAPER III.

Gadadhara's Paksata; Sarvabhaumanta.

Gadadhara's Siddhanatalaksana (whole).

BRANCH IV—*Vyakarana*

PAPER I.

Paribhasendusekhara (whole).

PAPER II.

Praudhamanorama, Text from beginning to end of Avayayibhava

Siddhantakaumudi Krt and Taddhita sections.

PAPER III.

Sabdaratna from beginning to end of Stripratyaya.

BRANCH V—*Sahitya.*

[Common to Vidvan (a).]

PAPER I.

1. Bana's Kadambari Purvardha from the beginning to the end of the description of Mahasveta.
2. Sri Harsha's Naishadha, Cantos 10 and 11.
3. Nilakantha Vijaya of Nilakanta Diksita, Ucchavasa III only.

PAPER II.

1. Shakuntala.
2. Uttararamacarita.
3. Mricchakatika.
4. Mudra Rakshasa.

PAPER III.

For Siromani only.—

Dandin's Kavyadarsa—Pariccheda I only.

Kuvalayananda (whole).

Siddhantakaumudi—Taddhita-Apatyadhikara only.

Dhananjaya-Dasarupaka with Avaloka.

1959, 1960 & 1961.

For Vidvan (a) only.—

Dandins Kavyadarsa, Pariccheda I only.

Kuvalayananda (whole).

Siddahantakaumudi, Purvardha to the end of Apatyadhikara.

1962

For Vidvan (a) only.—

Dandins Kavyadarsa, Pariccheda I only.

Kuvalayananda (whole).

Siddhantakaumudi, Purvardha to the end of Apatyadhikara, omitting 'Sabdadhikara'.

BRANCH VI—*Jyotisha.*

PAPER I.

Bhaskara's Bijaganita.

Bhaskaracharya's Lilavati—whole, omitting Parikarmastaka, Kuttaka and Pasa.

PAPER II.

Kshetramiti by Durgaprasada Books III and IV only.

Trikonamiti.

PAPER III.

Golaprakasa. Gapiyatrikonamiti and Golarekhaganita only.

BRANCH VII—*Ayurveda.*

PAPER I.

Astangahrdaya, Sarira, Nidana and Cikitsa Sthanas.

PAPER II.

Carakasamhita. Sutrasthana.

Susrutasamhita Sutra and Sarira Sthanas.

Pratyaksa sarira by Mahamahopadhyaya Gananath Sen.

PAPER III.

Rasaratnasamuccaya, first eleven chapters.

Siromani Final.

1959, 1960, 1961 & 1962.

BRANCH I—*Mimamsa.*

PAPER I.

Sabarabhasya, Ch. I with Kumarila's Vartika, Ch. I, omitting Slokavartika.

PAPER II.

Bhatta Dipika, Uttarasatka only.

PAPER III.

Nyayaratnamala of Parthasarathi Misra.

PAPER IV.

Bhattarahasya.

BRANCH II—*Vedanta.*

Advaita.—

PAPER I.

Siddhantabindu—Text only (whole).

Tattvapradipika of Citsukha, first Pariccheda only.

PAPER II

Advaitasiddhi, Pariccheda I from beginning to end of Agamabadhoddhara.

Advaitasiddhi, Pariccehda II, Akhandarthavada.

PAPER III.

Laghucandrika from beginning to end of Upadhi and Akhandarthavada section.

PAPER IV.

Common to the three systems of Vedanta: Sankhyakarika Gaudapadavrtti, Patanjali's Yogasutra with Bhojavrtti, Advaitaparibhasha Nitimala, Dasaprakaranas (omitting Karmanirnaya and Vishnutattvanirnaya).

Visishtadvaita.—

PAPER I.

Vedantha Sangraha.

Siddhitraya of Yamunacharya.

PAPER II.

Satadusani with Chandamaruta, first fifteen Vadas, only.

PAPER III.

Nyayasiddhanjana, first five Paricchedas (to the end of Buddhi pariccheda).

Dvaita.—

PAPER I.

Nyayamrta (First Pariccheda only).

PAPER II.

Nyayamrtatrangini, first Pariccheda only.

PAPER III.

Bhedojjivana;

Dasaprakaranas—Vishnutattva and Karmanirnaya.

BRANCH III—*Nyaya*

PAPER I.

Udayana's Nyayakusumanjali.

PAPER II.

Gadadhara's Vyupattivada.

Khandadeva's Bhattarahasya, to the end of Prathama

PAPER III.

Gadadhara's Avayava, from beginning to end of Pratinjina.

Gadadhara's Samanyanirukti.

PAPER IV.

Gadadhara's Satpratipaksa-vibhajaka.

Gadadhara's Avacchedakanirukti.

Gadadhara's Savyabhicarasamanyalaksana.

PAPER IV—*Vyakarana.*

PAPER I.

Mahabhasya, Navahnita

PAPER II.

Laghusabdendusekhara, to the end of Stripratyaya (upto and excluding-Karaka).

PAPER III.

Laghumanjusa, section containing Subarthavicara and Namarthavicara.

PAPER IV.

Gadadhara's Vyutpattivada from beginning to end of Prathama.

Vaiyakaranabhusanasara, all sections except Subarthavicara and Namarthavicara.

BRANCH V.—*Sahitya*

[PAPERS I and II, common to Vidvan (*a*).]

PAPER I.

Siddhantakaumudi, Uttarardha, omitting Unadi, Vaidika and Svara Prakaranas.

PAPER II.

Vararuchi's Prakrta Prakasa.

Vrttarantnakara, Chapters 1 to 4.

Vamana's Kavyalankara Sutravritti.

PAPER III.

Dhvanyaloka.

Ubdhata's Kavyalamkarasara.

PAPER IV.

Rasaganghadara, from the beginning upto the end of Rupaka.

Chitramimamsa.

Mammata's Kavyaprakasa.

BRANCH VI—*Jyotisha.*

PAPER I.

Siddhanta Siromani (whole).

PAPER II.

Brhatsamhita (whole).

Brhajjataka (whole).

PAPER III.

Muhurtacintamani (whole).

Prasnamarga, Purvardha only.

Grahalaghava, from beginning to end of Chandragrahanadhikara

PAPER IV.

Suryasiddhanta (whole).

Aryabhatiya (whole).

BRANCH VII.—*Ayurveda.*

PAPER I.

Carakasamhita—whole, omitting Sutrasthana.

PAPER II.

Susrutasamhita—whole, omitting Sutra and Sarira Sthanas.

PAPER III.

Astangahrdaya, Kalpa and Uttara Sthanas.

Rasaratnasamuccaya, Chapters 12 to end.

Rasahrdaya of Govindapada.

PAPER IV

Madhavanidana.

Siddhantanidana.

Vidvan Title Examinations.

1959, 1960, 1961 & 1962.

For Sanskrit when offered as the subsidiary language for the Vidvan (b) Title.

Preliminary.

Kalidasa's Kumarasambhava—Cantos 1 to 5.

Kadambari Sangraha, Purvabhaga (whole), R.V. Krishnamachariyar, Munitraya Mandiram, Kumbakonam.

Final.

Sakuntala by Kalidasa (whole).

MARATHI.

Vidvan (a).

Preliminary.

1959, 1960 & 1961.

PAPER I.

Prose:

1. Prathibha Sadhan—(Purvardha) by N. S. Phadke.
2. Kraunchavadha by V. S. Khandekar.
3. Punya Prabhav by Gadkari.

PAPER II.

Poetry:

1. Ambrai bv Girish.
2. Bandishala by Yeshwant.
3. Virata Parva by Mukteshwar.

PAPER III.

Composition:

Nibandhalekhan Aniwada by Bhide (For reference).

Final.

1959, 1960 & 1961.

PAPER I.

Prose:

1. Bhangalele Sewool by Madholkar.
2. Pratibha Sadan (Uttaradha) by N. S. Phadke.
3. Bhawbandham by Gadkari.
4. Vichar Vilas by V. M. Joshi.

PAPER II.

Poetry:

1. Nala-Damayanti Swayamvara Akhyan-Edited by Priyolkar.
2. Padhya Ratnavali by Krishna Sastri Chiplonkar.
3. Yashodhan by Yeshwant.

PAPER III.

Grammar, Prosody and Poetics:

1. Abinave Kavya Prakash by R. S. Jog.
2. Vritta Darpan by Godbole.
3. Proudha Bohda Vyakaran by R. B. Joshi.

Vidvan (b)

Preliminary.

1959, 1960 & 1961.

PAPER I.

Prose:

1. Sushileetha Deo by V. M. Joshi.
2. Kalidasachi Srishti by M. D. Altekar.
3. Totayachae Band by N. C. Kelkar.

PAPER II.

Poetry:

1. Wanavasi Phool by Rev. Tilak.
2. Yashodhan by Yeshwant.
3. Nala-Damayandi Swayamvara Akhyan by Raghunatha Pandit.

PAPER III.

Composition:

Essays based on 1. Nibandamala by V. K. Chiplonkar and
2. Nibandalekhanani Aniwada by Bhide.

PAPER IV

Grammar:

1. Mone: Marathi Sahitya va Vyakarana.
2. Damel: Shastriya Marathi Vyakarana (Chapters on Nama, Sarvanama, Visheshan and Kriyapade).
3. R. B. Joshi: Praudha bodha Vyakarana.

PAPER V.

Prosody and Poetics:

1. Abinava Kaya Prakash by R. S. Jog.
2. Kavya Lochan by D. K. Kelkar.
3. Vritta Darpan by Godbole.

Final.

1959, 1960 & 1961

PAPER I.

Prose:

1. Don Dhruva by V. S. Khandekar
2. Bali Dan by N. C. Kelkar.
3. Vidya Haran by Khadilkar.
4. Sahitya and Sunsar by N. S. Phadke.

PAPER II

Poetry:

1. Dyaneshwari, Chapter III.
2. Tambi Yanchi Kavita.
3. Bee: Phoolanchi Onjal.

PAPER III.

History of Literature:

1. Maharashtra Saraswat by V. L. Bhave.
2. Aravachina Marathi Sahitya by Nene.
3. Marathi Bhasha Udagama Ani Vikas by K. P. Kulkarni

PAPER IV.

Grammar:

1. Shastriya Marathi Vyakarna by Damle.
2. Dyaneshwarintil Marathi Bhasheche Vyakarna by Rajwade.

PAPER V.

Prosody and Poetics:

1. Alankara Chandrika by Gore.
2. Kavyalochan by D. K. Kelkar.
3. Vritta Darpan by Godbole.

All these Marathi books may be had of:

1. Venus Book Stall, Poona-2.

or

2. Modern Book Depot, Poona-2.

or

3. Bapat & Co., Book-Sellers, Bombay-2.

HINDI.

Vidvan (a).

Preliminary.

1959, 1960, 1961 & 1962.

PAPER IV.

Prescribed Text-Books for Poetry:

1. Tulasidas—Ayodhya Kand (Ramayan).
2. Kavya Sangrah, Parts I and II (Hindi Sahitya Sammelan).
3. Jayadrath Vadh—Maithili Sharan Gupta.
4. Pathik—Ramanaresh Tripati.

PAPER V.

Prescribed Text-books for Prose:

1. Gadya Sourabh—Guruprasad Tandon (Hindi Sahitya Sammelan).
2. Rangbhumi—Premchand.
3. Kalyani—Jainendra Kumar (Hindi Grantha Ratnakar Karyalaya, Bombay).
4. Madhu Manjari (Hindi Prachar Sabha, Madras).
5. Gadya Sourabh, Part III (Hindi Prachar Sabha, Madras).

VI—Composition.

Books for Reference:

1. Prabhandha Prabhakar—Gulab Roy (Hindi Bhavan, Prayag).
2. Sahitya Siksha (Hindi Grantha Ratnakar Karyalaya, Bombay)
3. Prabandha Sagar (Atmaram & Sons, Delhi).

Final.

1959, 1960, 1961 & 1962.

PAPER IV.

Poetry:

1. Surdas—Sur Pancha Ratna.
2. Gurubhakta Singh—Nurjahan.
3. Tulasidas—Kavitavali.
4. Maithili Sharan Gupta—Sakot.
5. Jay Sankar Prasad—Kamayani.

PAPER V.

Drama:

1. Jaya Shankar Prasad—Chandra Gupta.
2. Harischandra—Madra Rakshas.
3. Raja Lakshman Singh—Shakuntala Natak.
4. Dwijendralal Roy—Nurjahan.

PAPER VI.

Grammar, Prosody and Poetics:

1. Vaykaran Pradeep (Hindi Bhavan, Prayag).
2. Kavya Pradeep (Hindi Bhavan, Prayag).
3. Samkshipta Hindi Vyakaran—Kamptaprasad Guru.
4. Kavyanga Kalpadruma (Hindi Sahitya Sammelan).

Vidvan (b).

PRELIMINARY.

1959, 1960, 1961 & 1962.

PAPER I.

Poetry:

1. Ramayana-Tulasidas-Ayodhya Kand only.
2. Kavyasangraha Parts I and II (Hindi Sahitya Sammelan, Allahabad).
3. Kabir Dohavali (D. B. Hindi Prachar Sabha, Madras).
4. Gunjan by S. N. Pant.

PAPER II.

Prose:

1. Hindi Gadya Parijat -Hindi Sahitya Sammelan, Allahabad.
2. Ashok Ke Pool-Hazari Prasad, Dvivedi.
3. Madhumanjari (D.B. Hindi Prachar Sabha, Madras).
4. Gaban by Prem Chand.

Composition:

Books for Reference:

1. Prabandha Prabhakar—Gulab Roy (Hindi Bhavan, Prayag).
2. Sahitya Siksha (Hindi Grantha Ratnakar Karyalaya, Bombay).
3. Prabandha Sagar—Atmaram & Sons, Delhi.

Grammar:

1. Vykaran Pradeep (Hindi Bhavan, Prayag).
2. Vyakaran Chandrodaya—Ramalochan Sharan.
3. Samkshipta Hindi Vyakaran—Kamta Prasad Guru.

Prosody and Poetics:

1. Kavyanga Kalpa Druma (Hindi Sahitya Sammelan, Prayag).
2. Kavya Pradeep (Hindi Bhavan, Prayag).
3. Kavya Sastra—Prof. Sambunath Pandey (Vinod Pushtak Mandir, Hospital Road, Agra).

Vidvan (b)

Final.

1959, 1960, 1961 & 1962.

I. Poetry:

1. Priya Pravas—Ayodhya Singh Upadhyaya (14 to 17 Sargas only).
2. Saket—Maithili Saran Gupta (only 9, 10, 11 and 12 Sargas).
3. Kamayani—Jaya Shankar Prasad.
4. Bhramar Gita Sar—Surdas, edited by Ramachandra Sukle (Nagari Pracharini Sabha, Kashi).
5. Kavitavali—Tulasidas.

II. Drama :

1. Chandra Gupta—Jaya Shankar Prasad.
2. Mudra Rakshasa—Harischandra.

3. Sindhur ki Holi—Lakshminarayan Misra.
4. Prathinidhi Ekanki—Ask (Neelabh Prakashan, Prayag).
5. Hindi Natak Sahitya ka Ithihas by Somanath Gupta (Hindi Bhavan, Prayag).
6. Sakuntala Natak—Raja Lakshman Singh.

III. *History of Language and Literature:*

1. Hindi Bhasha ka Itihas—Dhirendra Varma.
2. Hindi Sahitya ka Itihas—Ramachandra Sukla.
3. Hindi Gadya Shaili ka Vikas—Pandit Jagannath Sarma.
4. Hindi Sahitya ka Subodh Itihas—Gulab Roy.

IV. *Grammar:*

1. Hindi Vyakaran—Kamta Prasad Guru (Nagari Hindi Pracharini Sabha, Kashi).
2. Vrajbhasha Vyakaran, Dhirendra Varma (Ramanarayan Lal, Allahabad).
3. Achchi Hindi—Ramachandra Sarma (Sahitya Ratnamala Karyalaya, Kashi).

V. *Prosody and Poetics:*

1. Hindi Chanda Prakash by Raghunandam Shastri (Rajpal & Sons, Kashmiri Gate, Delhi).
2. Nav Ras—Gulab Roy.
3. Alankar Manjusha—Bhagvan Deen.
4. Samkshipta Alankar Manjusha—Kanniah Lal Poddar (Hindi Sahitya Sammelan, Prayag).
5. Kavyanga Koumudi, Parts 1, 2, 3 (Nandakishor Bros, Chouki, Banaras).

TAMIL

Vidvan (a).

Preliminary.

1959, 1960 & 1961

Poetry:

Tirukkural—Araciyal, 25 Chapters.
Silappadhikaram—Maduraikkandam.
Kambaramayanam—Nagar Ningu Padalam

Periya Puranam—Kannappa Nayanar and Karaikalammaiyar Puranams.

Maduraikkalambagam.

Tamil-vidu-Tutu.

Prose:

Katturai-t-tokuti by M. Raghava Aiyangar.

Chulamani Vacanam by N. Balarama Aiyer.

Grammar:

Nannul Viruthi (Navalar Edition).

Purapporul Venba Malai.

Nambi Agapporul.

Yapparunkalakkarikai Urai.

Dandi Alankaram.

Final.

1959, 1960 & 1961.

Poetry:

Pattinappalai.

Purananuru—Stanzas 100-150.

Kurunthogai—Stanzas 1-100.

Manimekalai—Katais 1-10.

Chintamani—Kemasariyar Ilampakam.

Palamoli Nanuru—Stanzas 101-150.

Grammar:

Tolkappiyam—Eluttu—Ilampuranam.

Tolkappiyam—Sol—Senavaraiyam.

Tolkappiyam—Porul—Uvamam, Meyppatu and Marabu Iyals—Ilampuranam.

Vidvan (a)

Preliminary.

1962.

Poetry:

Tirrukkural	...	Angaviyal: 1-32 Chapters.
Silappadhikaram	...	Pukar Kandam (except Arankerru-kathai).

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Kambaramayanam	...	Kambaramayanasaram — Ayodhya Kandam.
Periya Puranam	...	Eripatha Nayanar and Tirukkurip-puttonda Nayanar Puranams.)

Tiruvarangathumalai.

Kachikkalambakam.

Tamilvidutootu.

Prose:

1. Narramil by S. S. Bharathiyar.
2. Valarum Tamil by Somele, Pari Nilayam, Madras.

Grammar:

Nannul Viruthi (Navalar Edition).

Purapporul Venba Malai.

Nambi Akapporul.

Yapparungalakkarikai Urai.

Dandi Alankaram.

Vidvan (a)

Final.

1962.

Poetry:

Netunalvatai.

Purananuru: 1-100 stanzas.

Kurunthokai: 101-200 stanzas.

Manimekalai: 11-20 Kathais.

Chintamani: Padumaiyar Ilambakam.

Palamozhi Nanuru: 51-100 stanzas.

Grammar:

Tolkappiyam—Eluttu—Ilampuranam.

Tolkappiyam—Sol—Senavarayam.

Tolkappiyam—Porul—Meyppatu, Uvamam and Marapu Iyals—Ilampuranam.

Vidvan (b).

Preliminary.

1959, 1960 & 1961.

Prescribed Text-Books in the Main Language I:

1. Tirukkural—Porutpal—Araisiyal and Amaichchiyal
2. Tiruvilayadal Puranam—Paranjothi—from the beginning to the end of Tirumanapatalam.
3. Villi Bharatham—Adi Parvam.
4. Kanchi Puranam—Nattupadalam; Nagarapadalam.
5. Tanjaivanan Kovai.
6. Kalingathupparani.

Prescribed Text-Books in the Main Language II:

1. Kaccikkalambakam by Ranganatha Mudaliar with the Commentary of M. Kandaswamy Mudaliar.
2. Muthukumaraswami Pillai-t-tamizh.
3. Selections from Mozhi Arasi, edited by Sami Velayudham Pillai.

Page 22—Venkataswami Nattar—15 lines.

Page 52—Dhandapani Swamigal—48 lines.

Page 85—Maraimalai Adigal—26 lines.

Page 109—Somasundara Pulavar—124 lines.

Page 128—Paranjothiar—8 lines—S.I.S.S.W. Publishing Society Tirunelveli, Ltd., 1140, Broadway, Madras-1.

4. Tiruppuvananathar Ula—edited by Kandaswami Pulavar.

Prose :

1. Tenkasi Vellivizha Malar, Part II.
2. Ilakkiya Araicchi by M. Varadarajan.
3. Tamizh Inbam by R. P. Sethu Pillai.
4. Pandai Tamizhar Inbiyal Vazhkai by Ilavazhaganar.
5. Kalvi Nilai by Jagaveera Pandiyar.

Grammar I:

Nannul—Viruthiurai—Sivagnana Swamigal.

Purapporul Venba Malai with commentary to the end of Padan Padalam.

Agapporul Vilakkam with old commentary.

Grammar II:

Yapparungalakkarikai with Gunasekarar Commentary.

Dandiyalankaram.

Vidvan (b)

Final

1959, 1960 & 1961.

Prescribed Text-books I:

Purananuru—200 to 300.

Agananuru—Kalirriyanai Nirai—71 to 120.

Kalithokai—Palaikali.

Kurunthogai Vilakkam by R. Raghavaiyangar—Published by the Annamalai University.

Pattuppattu—Perumpanatruppadai.

Pathirrupathu 6th and 7th pathus.

Prescribed Text-books II:

Tirukkural—1 to 63 chapters.

Silappadhikaram—Vanchikkandam.

Chintamani—Kemachariyar Ilambakam.

Perungathai—Ilavana Kandam.

Periya Puranam

Thaduthatkonda Puranam.

Eyarkon Kalikkama Nayanar Puranam.

Kalarirrarivar Nayanar Puranam.

Vellanaichharukkam.

Kambaramayanam—Ayohdya Kandam to the end of Nagarningu Padalam.

Grammar I:

Tolkappiyam—Eluttu—Ilampuranam.

Tolkappiyam—Sol—Senavaraiyam.

Grammar II:

Tolkappiyam—Porul—Ilampuranam, omitting Cheyyuliyal.

Iraiyanar Kalaviyal with Commentary.

History of Language and Literature:

Caldwell's Camparative Grammar—Introduction.

Mozhinool by M. Varadarajanar.

Ilakkiya Kalai by A. S. Gnanasambandam.

Tamizh Varalaru by K. S. Srinivasa Pillai, Parts I and II.

Tamizh Mozhi Varalaru by V. G. Suryanarayana Sastri.

Tamizh Ilakkia Varalaru—Part II by K. Subramaniya Pillai.

Tamizh Ilakkiam by S. Ramaswamy Nayudu (Published by the Annamalai University).

Vidvan (d)

Preliminary.

1959, 1960 & 1961.

Poetry, Prose and Grammar:

Prescribed Text-books in Poetry, Prose and Grammar—Same as for Vidvan (*b*)—Preliminary.

History of South India:

Pallavar Varalaru by M. Rajamanickkanar.

Cholar Varalaru by M. Rajamanickkanar.

Pandiyar Varalaru by Sadasiva Pandarathar.

Cheranadum Chentamizhum by Sadasivam.

Final.

1959, 1960 & 1961.

The same as for Vidvan (*b*)—Final, with the following additions:—

Inscriptions:

Same as for B.A. (Hons.)—Edited by the Madras University.

Sasana Tamil Kavi Charitham by M. Ragavaiyangar.

Vidvan (b).

Preliminary.

1962.

Prescribed Text-books in the Main Language I:

1. Arathuppal in Tirukkural.
2. Thiruvilaiydal—Paranjothi—Alavaykkandam: 1-8 Patalams.
3. Villi Bharatham—Udyoga Parvam.
4. Prabulinga Lilai to the end of Prabhu Devar vanda gathi.
5. Tanjaivanan Kovai.
6. Kalingatthupparani.

Prescribed Text-books in the Main Language II :

1. Maduraikkalambakam.
2. Meenakshi Ammai Pillai-t-tamizh.
3. Muvar Ula (1st Ula).
4. Alakar Killai Vidu Thoothu.
5. Muthollayiram (Edited by R. Muthu Ganesan, Pari Nilayam, Madras).

Prose :

Nallisaippulavarkal by A. Karmekhakkonar, Madurai.

Tamizha Ninaithuppar by Prof. T. P. Meenakshisundaram.

Tamizhar Viram by Prof. R P Sethu Pillai

Grammar I:

Nannul Vrithi (Navalar Edition)

Purapporul Venba Malai, with old commentary to the end of Padan Padalam.

Akapporul Vilakkam with old commentary.

Grammar II :

Yapparunkalakkarikai with Gunasakarar commentary.

Dandiyalankaram.

Final.

1962.

Prescribed Text-books I :

Purananuru : Verses 1-100.

Akananuru—Manimitaipavalam, 121-171 verses.

Kalithokai—Neytarkali

Kurunthokai—101-200 verses.

Pathuppattu—Mullaippattu with Marai Malai Atikal Araichi Urai.

Pathirruppathu—Second Pathu.

Prescribed Text-books II :

Thirukkural : 64-108 chapters.

Silappadhikaram : Maduraikkandam.

Chintamani—Ilakkaniyar Ilampakam.

Perunkathai—Ilava Kandam

Periyapuranam—Thirunavukkarasar Puranam.

Kambaramayanam—Sundarakandam I Part—Annamalai University Publications.

Grammar I:

Tolkappiyam—Eluthu—Ilampuranam.

Tolkappiyam—Sol—Senavaraiyam.

Grammar II:

Tolkappiyam—Porul—Ilampuranam omitting Seyyul Iyal.

Iraiyanar Kalaviyal with Commentary.

History of Language and Literature:

Caldwell's Comparative Grammar—Introduction.

Moli Varalaru by Dr. M. Varadarajan.

Tamil Varalaru by K S. Srinivasa Pillai—Parts I and II.

Ilakkiyakkalai by A. S. Gnanasambandam.

Tamil Ilakkiya Varalaru by K. Subrahmanya Pillai, Parts I and II.

Valarum Tamil by Somale, Pari Nilayam, Madras.

Tamil Mozhi Varalaru by V. G. Suryanarayana Sastriar.

TAMIL

Vidvan (b)

Preliminary.

1962.

Prescribed Text-books in Poetry, Prose and Grammar—Same as for Vidvan (*b*)—Preliminary for 1962.

History of South India:

Seramannar Varalaru—Avvai S. Duraiswamy Pillai.

Cholar Varalaru—Sadasiva Pandarathar.

Pandiyar Varalaru Do.

Pallavar Varalaru—Dr. M. Rajamanikkam.

Tennindia Varalaru by Dr. K. K. Pillai.

Final:

1962

The same as for Vidvan (*b*)—Final, 1962 with the following additions:

Inscrpitions:

Same as for B.A. (Hons.)—Edited by the Madras University.

TELUGU

Vidvan (a)

Preliminary.

1959, 1960 & 1961.

Poetry :

1. Bharatam: Aranya parvam—Ramopakyanam.
2. Harischandra—Nalopakyanam, Canto 2.
3. Maguva Manchala by Yetukuri Venkatanarasiah, Telugu Pandit, Guntur District Board.

Prose:

4. Desi in South Indian Languages and Literature by K. Ramakrishnaiya.

Drama:

5. Ratnapanchalika by G. V. Sitapati.
6. Kosalasamrajyam by B. V. Subba Rao, Advocate, Kakinada.

Grammar:

7. Balavyakaranam.
8. Proudhavyakaranam.
9. Kumarapanditeeyam by T. Arumugam (For Consultation).

N.B.—The first paper on Texts will be on Poetry and the second on Prose and Drama. Questions on Grammar will appear in both the text papers but will be only in relation to the texts studied.

Final.

1959, 1960 & 1961.

Poetry:

1. Sringara Naishadam, Canto 4.
2. Vasucharitra, Canto 4.
3. Manimekhala by Challa Lakshminarayana Sastry.

Drama:

4. Mrichakatika by Tirupati Kavulu.

Prose:

5. Bharatam: Tikkana Rachana by B. Lakshminarayana Rao, Lecturer, Presidency College, Madras.

Grammar, Prosody and Poetics:

6. Chintamani Vishaka Parisodhanam, Chapter 3 by V. Ch. Sitaramaswami Sastri.
7. Appakaviyam, Canto 3.
8. Sahitya Darpanam, Chapter 3.

N.B.—The first paper on Texts will be on Poetry and the second paper on Prose and Drama. No direct questions on Grammar, Prosody and Poetics will be asked in the Text paper.

Vidvan (b)

Preliminary.

1959, 1960 & 1961.

Poetry:

1. Bharatam—Aranya Parvam, Cantos 3 and 4.
2. Kumarasambhavam, Cantos 7 and 8.
3. Vasucharitram, Canto 2.
4. Kalapurnodayamu, Cantos 1 and 2.
5. Yadavaraghavapandaviyam, Canto 1.
6. Suprabhatamu by Ch. Lakshminarayana Sastry, Telugu Pandit, Board Hign School, Satyavedu, Chingleput district.

Prose:

1. Andhra Sahitya Charitra Sangraham by K. Lakshmiranjanam
2. Ghosha Yatra: V. V. L. Narasimharao, 32, Raman Street T. Nagar, Madras.

Drama:

1. Chitranaliyamu by D. Krishnamacharyulu.
2. Naganandam by V. Prabhakara Sastri.

N.B.—The first paper on texts will be on Poetry and the second on Prose and Drama.

Grammar I and II:

1. Balavyakaranamu.
2. Proudha Vyakaranamu.
3. Sahityadarpanamu (Venkataraya Sastri), Canto 3.
4. Kavyalankara Chudamani, Cantos 3 and 5.

Vidvan (b)

Final

1959, 1960 & 1961.

1. Bharatam, Mousala Parvam.
2. Basavapuranamu, Canto 1.
3. Sringara Naishadham, Naladutyam.
4. Harischandra—Nalopakhyanam, Canto 3.
5. Panduranga Mahatmyamu, Pundarika Charitra.
6. Rajagopalavilasamu, Chengalva Kalaya.

Prose:

1. Andhra Vachana Vangmayamu by N. Venkatarao.
2. Sakuntala Vimarasanamu (Sections 3, 5, 7, 8 and 9) by N. Bangarayya, Vakil, Rajahmundry.

Drama:

1. Uttararamacharita: V. Venkataraya Sastri.
2. Haliyudu by Ch. Rangacharyulu.

The first paper on texts will be on Poetry and the second on Prose and Drama.

Advanced Grammar, Prosody and Poetics I:

1. Andhra Sabda Chintamani with Balasaraswati commentary published by the Telugu Academy, Kakinada.
2. Adharvana Karikavali: Vavilla Publications, Madras.
3. Chintamani Vishaya Parisodhanamu by V. Ch. Sitarama Sastri, Vavilla Publications, Madras.
4. Tatsama Chandrika by S. Suryanarayana Sastri—for consultation only.
5. Vyakarana Parijatamu by V. Ch. Sitarama Sastri—for consultation only.
6. Balakavisaranyamu by G. V. Ramamurti, Navyasahitya Parishat, Guntur.

Advanced Grammar, Prosody and Poetics II:

1. Appakavyamu, Canto 3.
2. Lakshnasara Sangrahamu by Chitrakavi Peddana.
3. Narasabhupaliyam—Rasaprakaranam.

4. Andhra Dhvanyalokam, Parts III and IV by Vedala Tiruvengalacharyulu, Ananta Tirtha Agraharam, Guntur.
5. Andhra Dhvanya Lokamu, Part I (the first two udyokams by P. Lakshminarayana Sastry, Pandit, Sanskrit College, Vizianagaram.)
6. Andhra Alankara Vangmaya Charitra, pp. 47 to 70 by B. Venkataramanayya.

History of Language and Literature:

1. Andhra Vangmaya Charitra Sangraham by Kavitvavedi.
2. Bhashotpatti Kramam by K. Ramakrishnayya.
3. Andhra Bhasha Vikasamu by G. J. Somayaji.
4. Udaharana Vangmaya Charitra by N. Venkata Rao.
5. Sandhi by K. Ramakrishnayya.
6. Andhra Kavitarangani, Vols. I to XI by Ch. Seshayya.

Vidvan (d)

Preliminary.

1959, 1960 & 1961.

Poetry, Prose, Drama and Grammar:

[Same as for Vidvan (*b*)—Preliminary.]

History of South India:

Andhrula Charitra and Samskriti by K. Lakshmiranjanam, Osmania University, Hyderabad, Deccan.

Final.

1959, 1960 & 1961.

Poetry Prose and Drama:

[Same as for Vidvan (*b*)—Final.]

Advanced Grammar, Prosody and Poetics I:

1. Andhra Sabda Chintamani with Balasaraswatiya Commentary, Publishers: Telugu Academy, Kakinada.
2. Adharvana Karikavali: Vavilla Publications.
3. Chintamani Vishaya Parisodhanamu by V. Ch. Sitarama Sastri; Vavilla Publications.

4. Tatsama Chandrika by S. Suryanarayana Sastri, for consultation.
5. Vyakarana Parijatamu by V. Ch. Sastri, for consultation.
6. Balakavisaranyamu by G. V. Ramamurti, Navya Sahitya Parishad, Guntur.

Advanced Grammar, Prosody and Poetics II:

1. Appakavyamu, Canto 3.
2. Lakshnasara Sangraham by Peddanna (Chitrakavi).
3. Narasabhupaliyam, Rasaprakasam only. Edited by B.V. Ramanayya, Kellet High School, Madras.
4. Andhra Dhvanya Lokhamu, Parts III and IV by Vedal-Tiruvengalacharyulu, Ananda Tirtha Agraharam, Guntur.
5. Andhra Dhvanyalokhamu, Part I (the first two Udyokams) by P. Lakshmi Narayana Sastri, Sanskrit College, Viziayanagaram.
6. Andhra Alankara Vangmaya Charitra by B. Venkataramanayya pp. 47 to 70.

Inscriptions:

Sasana Padyamanjari, Nos. 1 to 10—Telugu Academy, Kakinada.

TELUGU

Vidvan (a)

Preliminary.

1962.

Politics:

1. Bharatam Aranyaparvam Ramopakhyanam.
2. Harischandra—Nalopakhyanam, Canto 2.
3. Maguva Manchala—Yetukuri Venkatanarasiah, Telugu Pandit, Guntur District Board.

Prose:

4. Desi in South Indian Languages and Literature by K. Ramakrishnaiya.

Drama:

5. Ratnapanchalika by G. V. Sitapati.
6. Kosalasamrajyam by R. V. Subba Rao, Advocate, Kakinada.

Grammar :

7. Bala vyakaranam.
8. Proudha vyakaranam.
9. Kumarapanditeeyam by T. Arumugam (For consultation).

N.B.—The first paper on texts will be on Poetry and the second on Prose and Drama. Questions on grammar will appear in both the text papers but will be only in relation to the texts studided.

Final

1962.

Poetry :

1. Sringara Naishadam, Canto 4.
2. Vasucharitra, Canto 4.
3. Manimekhala by Challa Lakshminarayana Sastri.

Drama :

4. Mrichakatika by Tirupati Kavulu.

Prose :

5. Bharatam : Tikkana Rachana by B. Lakshminarayana Rao, Lecturer, Presidency College, Madras.

Grammar, Prosody and Poetics :

6. Chintamani Vishaya Parisodhanam, Chapter 3 by V. Ch. Sitarama Sastri.
7. Appakavyamu, Canto 3.
8. Sahitya Darpanam, Chapter 3.

N.B.—The first paper on texts will be on Poetry and the second paper on Prose and Drama. No direct questions on grammar prosody and poetics will be asked in text papers.

Vidvan (b).

Preliminary.

1962.

Poetry :

1. Bharatam—Aranya Parvam, Cantos 3 and 4.
2. Kumarasambhavam, Cantos 7 and 8.

3. Vasucharitram, Canto 2.
4. Kalapurnodayam, Cantos 1 and 2.
5. Yadavaraghava Pandaviyam, Canto 1.
6. Suprabhatamu by Ch. Lakshminarayana Sastri, Telugu Pandit, Board High School, Satyavedu, Chingleput District.

Prose :

1. Andhra Sahitya Charitra Sangraham by K. Lakshmiranjanam.
2. Ghosha Yatra : V. V. L. Narasimha Rao.

Drama :

1. Chitranaliyamu by D. Krishnamacharyulu.
2. Naganandam by V. Prabhakara Sastri.

N.B.—The first paper on texts will be on poetry and the second paper on Prose and Drama.

Grammar I and II :

1. Bala Vyakaranamu.
2. Proudha Vyakaranamu.
3. Sahityadarpanamu (Venkataraya Sastri), Canto 3.
4. Kavyalankara Chudamani, Cantos 2 and 5.

Final

1962.

1. Bharatam, Mousala Parvam.
2. Basavapuranamu, Canto 1.
3. Sringara Naishadham, Naladutyam.
4. Harischandra Nalopakyanam, Canto 3.
5. Panduranga Mahatmyamu, Pundarika Charitra.
6. Rajagopal Vilasamu, Chengalva Kalaya.

Prose :

1. Andhra Vachana Vangmayamu by N. Venkata Rao.
2. Sakuntala Vimarsanamu (Sections 3, 5, 7, 8 and 9) by N. Bangarayya, B.A., B.L., Vakil, Rajahmundry.

Drama :

1. Uttara Ramacharitra : V. Venkataraya Sastri.
2. Halikudu by Ch. Rangacharyulu.

The first paper on texts will be on Poetry and the second on Prose and Drama.

Advanced Grammar

Prosody and Poetics :

1. Andhra Sabda Chintamani with Balasaraswathi Commentary—Published by the Telugu Academy, Kakinada.
2. Adharvana Karikavali : Vavilla Publications, Madras.
3. Chintamani Vishaya Parisodhanamu by V. Ch. Sitaramayya Sastri—Vavilla Publication, Madras.
4. Tatsama Chandrika by S. Suryanarayana Sastri.
5. Vyakarana Parijatamu by V. Ch. Sitarama Sastri (for consultation only)
6. Balakavisaranyamu by G. V. Ramamurthi—Navyashity Parishat, Guntur.

Advanced Grammar, Prosody and Poetics II :

1. Appakavyamu, Canto 3.
2. Lakshanasara Sangraham by Chitrakavi Peddanna.
3. Narasabhupaliyam : Rasaprakaranam.
4. Andhra Dhvanyalokanam, Parts III and IV by Vedula Tiruvengalacharyulu.
5. Andhra Alankara Vangmaya Charitra, pp. 47 to 70, by V. Venkataramanayya.

History, Language and Literature :

1. Andhra Vangmaya Charitra Sangraham by Kavitvavedi.
2. Bhashotpatti Kramam by K. Ramakrishnayya.
3. Andhra Bhasha Vikasamu by G. J. Somayaji.
4. Udaharana Vangmaya Charitra by N. Venkata Rao.
5. Sandhi by K. Ramakrishnayya.
6. Andhra Kavitarangani, Volumes 1 to 10 by Ch. Seshayya.

Vidvan (d)

Preliminary.

1962.

Poetry, Prose, Drama and Grammar :

Same as for Vidvan (b) I and II—Preliminary.

History of South India :

Andhrula Charitra and Samskriti by K. Lakshmiranjanam, Osmania University, Hyderabad, Dn.

Final

1962.

Poetry, Prose and Drama :

Same as for Vidvan (b).

Advanced Grammar, Prosody and Poetics I :

1. Andhra Sabda Chintamani with Balasaraswathi Commentary—Publishers : Telugu Academy, Kakinada.
2. Adharavana Karikavali : Vavilla Publications.
3. Chintamani Vishaya Parisodhanamu by Ch. Sitarama Sastri—Vavilla Publications.
4. Tatsama Chandrika by S. Suryanarayana Sastri—For Consultation.
5. Vyakarana Parijatamu by V. Ch. Sastri—For Consultation.
6. Balakavisaranyamu by G. V. Ramamurti.

Advanced Grammar, Prosody and Poetics II :

1. Appakaviyamu, Canto 3.
2. Lakshanasarasangraham by Peddanna (Chitrakavi).
3. Narasabhupaleeyam, Rasaprakasam only—Edited by B. V. Ramanayya, Kellet High School, Madras.
4. Andhra Dhvanyalokanamu, Part II by P. Lakshminarayana Sastri, Sanskrit College, Viziayanagaram.
5. Andhra Alankara Vangmaya Charitra by B. Venkataramanayya, pp. 47 to 70.

Inscriptions :

Sasana Padyamanjari—Nos. 1 to 10: Telugu Academy, Kakinada

KANNADA

Vidvan (a)

Preliminary.

1959, 1960, 1961 & 1962.

I. *Prescribed Text-books I*:

1. Gadayuddha by Ranna (whole).
2. Yasodhara Charitra Sangraha (Mysore University).
3. Pancha Tantra (Durga Simha)—III Tantra.
4. Sri Rama Pattabhishekha by Mahalakshmi.

II. Prescribed Text-books II:

1. Ascharya Chudamani by M. Ramakrishna Bhat.
2. Pampa Bharatada Sara by G. P. Rajratna.
3. Adbhuta Ramayana.
4. Pasupatha by M. Shankaranarayana Bhat.
5. Kavya Samikshe by T. N. Srikantiah.

III. Composition:

Vidvan (a)

Final.

1959, 1960, 1961 & 1962

I. Prescribed Text-books I:

1. Pampa Bharata, Aswasas 12 and 13.
2. Dharmamrita (Nayasena), Aswasas 6, 7 and 8.
3. Ramaswamedha, Chapters 1 to 6 (both inclusive).

II. Prescribed Text-books II:

1. Bhishma Parva Sangraha. (Edited by T. S. Shama Rao).
2. Venisamhara Nataka Pratikriti by Pandit Sitarama Shastry.
3. Kabbigara Kava (Andayya).

III. Prescribed Text-books—Grammar, Prosody and Poetics:

1. Sabdamanidarpana.
2. Chandombudhi.
3. Kavyavalokana (omitting Sabdasmiriti).
4. Kannada Kaipidi (Mysore University), omitting portions in Grammar and Chandas.
5. Kannada Sahitya Charitre by R. S. Mugali.
6. Karnataka Kavi Charitre, Vol. I only.

Vidvan (b)

Preliminary.

1959, 1960, 1961 & 1962.

I. Prescribed Text-books I:

1. Gada Yuddha (Ranna).
2. Kabbigara Kava (Andayya).
3. Chikadevaraya Vamsavali.
4. Jagannatha Vijaya, Aswasas 1 to 4.

II. Prescribed Text-books II:

1. Harischandra Kavya Sangraha.
2. Dharmamrita (Nayasena), Aswasas 1 to 3.
3. Swapnavasavadatta (Alasingachar).
4. Hebberalu (M. Govinda Pai).
5. Guru Dakshine by K. Shanker Bhat.

III. Composition:

IV. Gramamr:

1. Sabdasmriti.
2. Sabdamanidarpana.

V. Prosody and Poetics:

1. Kannada Kaippidi—Alankara portions only.
2. Kavyavalokana, omitting Sabdasmriti.

Vidvan (b)

Finl.

1959, 1960, 1961 & 1962.

I. Prescribed Text-books I:

1. Pampa Bharata, Aswasas 9 to 11 (both inclusive).
2. Leelavathi, Aswasas 7 to 9 (both inclusive).
3. Pampa Ramayana, Aswasas 1 to 5 (both inclusive).
4. Girija Kalyana, Aswasas 5 to 7 (both inclusive).
5. Ramaswamedha—Chapters 1 to 8 (both inclusive).

II. Prescribed Text-books II

1. Kumaravyasa Bharata—Sabha Parva Sangraha. (T. S. Shama Rao).
2. Hadibadeya Dharma by Honnamma.
3. Uttara Rama Charitram by M. S. Bhat.
4. Basavaraja Devara Ragale (T. S. Venkanayya).
5. Sundara Kanda (Government Manuscripts Library), 1st 3 sandhis.

III. History of Language and Literature:

1. Kavi Charite, III Vols. (R. Narasimhachar).
2. Kannada Sahitya Charitre by R. S. Magali.
3. Kannada Kaipidi—Portions relating to History of Language and Literature only.
4. Karnataka Gata Vibhava by Alur.
5. Kalidasa Mattu Bhavabhuti by K. Gopalakrishna Sastri.

IV. Grammar:

1. Karnataka Bhasa Bhushana (Naga Varma).
2. Subdanusasana (Bhatta Kalamka).

V. Prosody and Poetics:

1. Kaviraja Marga.
2. Chandombudhi.
3. Apratima Vira Charite.
4. Rasa Ratnakara.
5. Kavi Samaya (Ramanujaiengar).

Vidvan (d)

Preliminary.

1959, 1960, 1961 & 1962.

PAPERS I to V.

[Same as for Vidvan (*b*)—Preimlinary.]

For Paper VI: History of South India:

1. Nadoja Pampa (Thimmappaya), Historical portions only.
2. Kannada Nadina Charitre—3 Parts (Kannada Sahitya Parishat, Bangalore).
3. Karnatakada Arasumanetanagalu by R. S. Panchamukhi.

Final.

1959, 1960, 1961 & 1962

PAPERS I to V.

[Same as for Vidvan (*b*)—Final.]

For Paper VI: Inscriptions:

1. Sasana Padya Manjari by R. Narasimhachar.
2. Thirty Kannada Inscriptions (Madras Univerrity).
3. Karnataka Inscriptions, Vol. I (Kannada Research Institute, Dharwar).

MALAYALAM

Vidvan (a)

Preliminary.

1959, 1960, 1961 & 1962.

I. Prescribed Text-books I:

1. Kannassa Bhagavatham, Part I : 1 to 5 adhyaya—Edited by Dr. L. A. Ravi Varma (Travancore University Publication).
2. Krishnagatha: Rugmini Swayamvaram and Kamsa Sadgati (Any Press).
3. Ramayana Campu: Vicchinnabhishekam—Edited by K. Sankaran Menon, Cochin Bhasha Parishkarana Committee.
4. Bharatam: Bhishma and Santi Parvas by Ezhuthachan (Any Press).
5. Aswati Tirunal : Ambarisha Charitam Attakatha.
6. Dutavakyam—Edited by Ulloor.
7. Kunchan Nambiyar : Sabha Pravesam (Any Press).

II. Prescribed Text-books II:

1. Ulloor S. Parameswara Ayyar : Umakeralam, Sargas 1 and 2.
2. Kerala Varma: Mayura Sandesam
3. Ascharya Chudamani (Translated by Kunhi Kuttan Tampuran).
4. N. Krishna Pillai: Anuranjanam.
5. Dr. K. Bhaskaran Nayar : Kalaiyum Kalavum.
6. P. Damodaran Pillai : Vicharatharangani.

Final.

1959, 1960, 1961 & 1962.

I. Prescribed Text-books I:

1. Ramacharitham: 1 to 10 patalams. (Any Press)
2. Kannassa Ramayanam, Uttarakandam—First 100 verses, Edited by Kavungal Neelakandha Pillai, Sri Rama Vilas Press, Quilon.
3. Unnunili Sandesam. (Any Press)
4. Rajaratnavaliyam: Champu (Any Press).
5. Krimmira Vadham Attakatha (Edited by P. Krishnan Nayar).
6. Adhyatma Ramayanam—Ayodhyakandam (Any Press).
7. Krishnagatha—Rituvarnanam (Any Press).
8. Bhasha Kautiliyam, Part I—Travancore University Manuscripts Library Publication.
9. P. Sankaran Nambiar: Sahityanishkutam.

II. Prescribed Text-books II:

1. Kundoor Narayana Menon: Nalu Bhasha Kavyangal.
2. Ulloor S. Parameswara Ayyar: Tarangini
3. G. Sankara Kurup: Patunna Kallukal.
4. Parameswaran Pillai: Anargha Raghavam (Author, Retd. Headmaster, Sarkara, Chirayinkil, South Travancore).
5. Othello (Translated by Sanjayan), The Mathrubhumi Press, Kozhikode.
6. P. M. Sankaran Nambiyar: Kalidasanum Natakathrayavum.
7. K. M. Kuttikrishna Marar: Sahitya Vidya.
8. Soornad P. N. Kunjan Pillai: Sahityapravesika.

III. Grammar, Prosody and Poetics:

1. A. R. Raja Raja Varma: Kerala Panineeyam—B. V. Book Depot, Trivandrum.
2. Lilatilalakam. (Any edition).
3. A. R. Raja Raja Varma : Bhashabhushanam.
4. A.R. Raja Raja Varma : Vrittamanjari.
5. Appan Tampuran: Dravida Vrittangalum, Avayude Desaparinamangalum.

Vidvan (b)

Preliminary.

1959, 1960, 1961 & 1962.

I. Prescribed Text-books I:

1. Kannassa Bhagavatham, Part I: 1 to 5 adhyayas. Edited by L. A. Ravi Varma (Travancore University Publication).
2. Krishnagatha—Rugmini Swayamvaram and Kamsa Sadgati (Any Press).
3. Ramayana Campu: Vicchinabhishekam. (Edited by K. Sankara Menon, Cochin Bhasha Prishkarana Committee).
4. Baratam: Bhisma and Santi Parvas. (By Ezhuthachan) (Any Press).
5. Kunchan Nambiyar: Sabha Pravesam by Tullal (Any Press).
6. Aswati Tirunal: Ambarisha Charitam. (Any Press).
7. Unnayi Wariar: Nala Charitam—3rd day (Any Press).
8. Dutavakyam. (Edited by Ulloor).
9. Dr. C. A. Menon: Pradakshinam (Lokavani Press, Tambaram)

II. Prescribed Text-books II:

1. Ulloor S. Parameswara Ayyar: Umakeralam, 1 and 2 sargas.
2. Kumaran Asan: Karuna (Sarada Book Depot, Alwaye).
3. Kerala Varma: Mayura Sandesam.
4. G. Sankara Kurup: Navathithi.
5. P. Kunhiraman Nair: Nirapara, Part I.
6. P. G. Nair: Savithri (Pub.: National Book Stall, P.B. No. 40, Kottayam).
7. Ascharya Chudamani (Translated by Kunhikuttan Tampuran).
8. N. Krishna Pillai: Anuranjanam (National Book Stall, Kottayam).
9. Dr. K. Bhaskara Nair: Kalaiyum Kalavum.
10. P. Damodaran Pillai: Vicharatharangini.
11. V. K. Kesavan Nair and M. P. Sankunni Nair: Nallabhoomi.

III. Grammar I:

1. Lilatilakam—3rd silpam only (Introduction by Soornad Kunjan Pillai).
2. Kovunni Nedungadi: Kerala Kamudi.
3. Seshagiri Prabhu: Vyakaranamitram.

IV. Grammar II:

1. A. R. Raja Raja Varma: Bhashabhushanam.
2. A. R. Raja Raja Varma: Vrittamanjari.
3. Sahityadarpanam, Part I.
4. P. Krishnan Nair: Kavya Jivithavritti, Part I.

Final.

1959, 1960, 1961 & 1962.

I. Prescribed Text-books I:

1. Ramacharitam—1 to 10 patalams (Any Press).
2. Kannassa Ramayanam—1 to 100 stanzas (Uttarakandam). Edited by Kavungal Nilakandha Pillai, Sri Rama Vilasam Press, Quilon.
3. Unnunili Sandesan (Any Press).
4. Rajaratnavaliyam Champu (Any Press).
5. Krimmira Vadham Attakatha. Edited by P. Krishnan Nair.
6. Adhyatma Ramayanam—Ayodyakandam by Ezhuthachan (Any Press).
7. Krishnagatha—Rituvarnanam (Any Press).
8. Bhasha Kautilyam, Part I (Travancore University Manuscript Library Publication).
9. P. Sankaran Nambiyar: Sahityanishkutam.

II. Prescribed Text-books II:

1. Kundoor Narayana Menon: Nalu Bhasha Kavyangal.
2. Ulloor S. Parameswara Ayyar: Tarangini.
3. Kunchan Nambiar: Kartaveeriyarjuna Vijayam.
4. G. Sankara Kurup: Patunna Kallukal.

5. Kumaran Asan: Leela.
6. Balamani Amma: Prabhankuram.
7. P. Parameswaran Pillai : Anargha Raghavam (Author, Retd. Headmaster, Sarkara, Chirayinkil South, Travancore).
8. Othello (Translated by Sanjayam): The Mathrubhumi Press, Kozhikode.
9. C. V. Raman Pillai: Dharma Raja.
10. P. M. Sankaran Nambiyar: Kalidasanum Natakatrayamum.
11. Soornad P. N. Kunjan Pillai: Sahityapravesika.
12. K. M. Kuttikrishna Marar: Sahityavidya.

III. Advanced Grammar, Prosody and Poetics I:

1. A. R. Raja Raja Varma: Kerala Panineeyam, omitting Peethika.
2. P. K. Narayana Pillai: Prayoga Deepika (P. K. Memorial Press, Vazhuthakkad, Trivandrum).
3. Appan Tampuram : Dravida Vrittangalum, Avayude Dasaparinamanagalam (Mangalodayam, Trichur).
4. Kuttikrishna Marar: Vritta Silpam—Mathrubhumi Kozhikode.

IV. Advanced Grammar, Prosody and Poetics II:

1. P. Krishnan Nair : Kavya Jivithavritti, Parts II and III.
2. Lilatilakam (All silpas, omitting 1 to 3).
3. M. P. Paul : Saundaryanirikshanam.
4. A. D. Hari Sarma : Nataka Pravesika.

V. History of Language and Literature :

1. Kerala Panineeyam (Peethika).
2. Lilatilakam, 1 and 2 silpas (with introduction by Soornad Kunjam Pillai).
3. Attoor Krishna Pisharoti: Sahitya Charitam.
4. Ulloor S. Parameswara Ayyar: Kerala Sahitya Charitam, Volume I.
5. R. Narayana Panicker : Bhasha Sahitya Charitram, Parts III and IV.
6. M. P. Paul: Novel Sahityam.
7. M. P. Paul: Cherukathaprasthanam.

Vidvan (d)

Preliminary

1959, 1960, 1961 & 1962.

Papers I to V—Same as for Vidvan (b)—Preliminary.

VI. History of South India :

1. K. P. Padmanabha Menon: Kochirajya Charitam, Part I (M. Narayana Menon, Vakil, Ernakulam).
2. Malabar Gazetteer (Malayalam), Government Press, Madras.
3. R. Narayana Panicker: Tiruvitankoor Charitam.
4. Attoor Krishna Pisharoti: Bashaiyum Sahityamum (Madras University Publication).
5. Karuppan Veetil Gopala Pillai : Kerala Mahacharitam.
6. Elankulam Kunhan Pillai : Kerala charithirathile Irı ladanja Edukal.

Final

1959, 1960, 1961 & 1962.

Papers I to V—Same as for Vidvan (b)—Final.

VI. Inscriptions :

All the inscriptions quoted by R. Narayana Panicker in his Kerala Bhasha Sahitya Charitram, Part I.

AFZAL-UL-ULAMA EXAMINATION

Preliminary

1959, 1960, 1961 & 1962

I. Tafsir :

1. Al-Quran, Chapters 60-114—The Following commentaries are recommended for study and consultation :—

(*a*) Tafsir Iba Kathir.

(*b*) Tafsir al-Madarik by al-Nasafi.

(*c*) Tafsir Abu-al-Sa'ad.

2. Al-wanyal-Muhammadi by Rashib Rida.

Hadith :

For detailed study :

Kitab-al-Muatta by Malik—First half only.

For Consultation :

1. Al-Muntaqa by Al-Qadi Abu al-Walid al Andalusi.
2. Ai-Musawwa by Shah Waliullah.

Ilm al-Hadith :

For detailed study :

1. Nuzhat al-Nazar Sharh Nukhbat al-Fikr by Ibn Hajar al'Asqalani.
2. Ikhtisar ulum al-Hadith by al-Hafix Ibn al-Kathir.

For Consultation :

1. Sharh Nakhbat al-Fikr by Mulla Ali al-Qari.
2. Alfiyat al-Hadith by al-Siyuti.

II. Fiqh :

1. Al mustafa by al-Ghazzali.
2. Chapters on' Ibadat, Munakihat and Hudud from either Sharh al-wiqahah or Fath al-Mo'in.

Aqaid :

For detailed study :

1. Al-Ibana 'an usual 'al-Diyanat by Abu-al-Hasan.
2 Sharth Al-Aqaid al-Nasafiya al-Ash 'ari.

For Consultation

1. Ayat Allah fi al-Afaq by Muhammed Ahmad al-'Adavi.
2. Al-Durr al Nadid fi Ikhlas Kalimahal Towhd.

Mantiq:

1. Mirqat.
2. Mi'yar al 'Ilm fi fann al-Mantiq by al-Ghazzali.
3. Ilm al-Mantiq by Mohammed al-Ibrahimi

III. Prose—Text-books :

1. Hadith 'Esa Ibn Hisham by Shaikh-Mohammed Bek la muvalahi.

2. Qadat al-Fikr by Taha Husain.

Poetry—Text-books:

1. Al-Mo'allaqat al-Sab.
2. Hamziyat Abi Taman, edited by 'Abd al-Salam Harun.

IV. History of Arabic Language and Literature:

1. Tarikh al-Adab al-Arabi by Ahmad Hasan, Zyyat.

2. Al-Mujmal fi Tarikh al-Adab al-Arabi (Published by the Education Department, Cairo).

3. Fajr al-Islam by Ahamed Amin, Vol. I.

V. Translation:

VI. Grammar, Rhetoric and Prosody:

1. Al-Nahval-Wadeh al Thanavi—3 Parts (Ma'aru Press, Cairo)
2. Al-Balaghat al-Wadeha (Ma'arifi Press, Cairo).

Final

1959, 1960, 1961 & 1962

I. Tafsir :

(a) Al-Quran, Chapters 1, 2 and 3—The following commentaries are recommended for study :—

1. Tafsir al-Kash Shaf by Zamakh Shari
2. Tafsir al-Kabir by Razi.
3. Tafsir al-Manar by Rahid Rida.

(b) 1. 'Manahil al 'Irian fi ulum al-Quran by al-Zarqani.
2. Al-Tibyan fi Aqsam al-Quran by Ibn Qyyim.
3. Al-Tibyan li Ba'd Mabahith al-Quran by al-Jayaziri.

Hadith :

1. Sahih al-Bukhari—From Kilab al-Maghazi to Kitab al-Niokah.

2. Sunan Abu Daud—From Kitab al-Faraid to Kitab al-'Ilm ; Kitab al-Sunnah and'itab al-Adab.

Books for consultation:

1. Fath al-Bari by Ibn Hajr al 'Asqalani.
2. 'Umdat al-Qari by Aini.
3. Al-Manhal al 'Azb al-Mourud Sharh Sunan Abu Daud by Khattab al-Subki.

Ilm al-Hadith:

1. Muqaddimah Ibn al-Salah.
2. Toujih al-Nazr ila usul al-Athar by Tahir al-Jazairi.
3. Tawil Mukhtalaf al-Hadith by Ibn Qutaibal.

Fiqh—Qism al Muamalat and Qism al Mavarith:

Books recommended for study:

1. Mizan al-Kubra by She'rani.
2. Bidayat al-Mujtahid by Ibn Rushd.
3. Sharh al-Sayyed al-Jurjani 'ala al Sirajiyah.
4. Khulasah 'Ilm al-Faraid by Abd al-Majid al-Sharaubi.

Usul al-Fiqh :

1. Usul al Fiqh by Khudri Bek.
2. Tarik al-Tashri al-Islami by Khudri Bek.
3. Falsafat al-Tashri fi al-Isiam by Subhi Mohamsani.
4. Al-Qoul al-Mufid fi Adillat at-Ijtihad wa-al-Taqdid by Shoukhan.

Ilm al-Kalam:

1. Al-Musamarah li al-Kamal Ibn Abi Sharif fi Shrah al-Musayarah li al-Kamal Ibn Hurram.
2. Mukhtasar al-Farq Bain al-Firaq by Abd al-Qahir ali Baghdadi.
3. Iljam al-'wam an Ilm al-Kalam by al-Ghazzali.

III. Prose—Text-books :

1. Kitab Nahj al-Balaghat, edited by Mohammed Abduhu.
2. Sa'at Bain al-Kutub by al-Aqqad.

Poetry—Text-books—For detailed study :

Diwan Omar Ibn Abi Rabia.

For general reading :

Al-Ghazal 'ind al-Arab by Hassan Abn Rahab.

IV. History of Arabic Language and Literature :

Tarikh Adab al-Lughat al-Arabiya *Zaidan*, 4 volumes.

V. Philosophy:

1. Tarikh Falasifat al-Islam fi al-Mashriq wa al-Maghrih by Mohammed lutfi Jum'ah.
2. Tarikh Falsafah fi al-Islam by 'Abd al-Hadi.
3. Tahafat al-Falasifah by al-Ghazzali.
4. Tahafat al-Falasifah by Ibn Rushid.

Balaghat :

1. Jawahir al-Balaghat by Hashimi Bek.
2. Ulum al-Balaghat by Ahmed Mustafa al-Maraghi.
3. Ijaz al-Quran by Baquilani.

VI. Islamic History:

From the advent of Islam to the Sack of Baghdad.

Books recommended for study :

1. Hayat Muhammad by Husain Haikal Bek.
2. Muhadarat Tarikh al-Umam al-Islamiah by Khudri Bek.
3. Tarikh al-Arab fi Asbania by ' Abdullah 'Anan.
4. Tarikh al-Hadarat al-Islamiah by Hamza Tahir.

Books for consultation :

1. Tarikh al-Islam al-Siyasi by Dr. Hasan Ibrahim Hasan.
2. Al'Atab by Dr. Philip Hitti.
3. Tarikh al-Tamaddun al-Islami by *Zaidan*.
4. Al-Islam wa al-Hadarat al-Arabiya by Muhammadi Kurd Ali.

MUNSHI-I-FAZIL

Preliminary.

1959, 1960, 1961 & 1962

Persian Prose:

Sih Nathr—Zuhuri—1st Nathr.
Waqa'i Ni'mat Khani Ali (2 Waqa'i).
Chahar Maqala by Nizami Samarqandi.

Persian Poetry :

Asrar-Khudi by Dr. Sir Muhammad Iqbal.
Qasaid-i-Qa'ani by Ja'fari.
Diwani Hafiz Radif Alif, Ba and Dal.

Non-detailed study:
Qissa-i-Haji Baba Isfahani.

Grammar, etc.:
Kanzul Balaghat.

Islamic History :
Tarikhul Ummat, Volumes 1-3, Aslam, Jairajpur

Urdu Text-books:
Mawji Kawsar by Ikram.
Ibnul Waqt by Nazir Ahmad.

Final.

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Persian Prose and Poetry:

Jami by Ali Asghar Hikmat.
Javid Nameh—Iqbal.
Makhzan-i-Asfar Nizami.
Abul Fazl 1st Daftar.

History of Persian Language and Literature:

Sukhan waran-i-Iran Dar-Asri Hazir, Vol. I.
Tarikh-i-Adabiyyati Iran—2 Vols. Published by Anjuman Taraqqi-i-Urdu.

Islamic History:

Tarikhi Millat { Khilafat-i-Bani Umayyah / Khilafat-i-Abbasiyah } Published by Daru Musamifin.

Grammar, Rhetoric and Prosody :

Khazinatul Fawaid, Volume II.

Urdu Text-books:

Sirat-i-Sayyid Ahmad Shahid.

Arhari-i-Iqbal by G. D. Rashid.

ADIB-I-FAZIL

Preliminary.

1959, 1960, 1961 & 1962

Urdu Prose:

Ifadat-i-Salim.

Taubatun-Nasuh.

Yadgar-i-Hali (Anjuman-i-Taraqqi-i-Urdu. Denbi).

Urdu Poetry:

1. Intihabi Kalam-i Mir by Imadul Mulk.
2. Diwani—Hali.
3. Gulzari-Nasim.
4. Nashat-i-Ruh by Asghar.
5. Rubaiyyat-i-Amjad, Part I.

Grammar, Prosody and Poetics :

1. Qawaid-i-Urdu by Abdul Haq.
2. Tashilul Balaghat by Sajjad Mirza.

Tarik-i-Islam :

Tarik-i-Islam by Shah Moinuddin Ahmad Nadwi (all parts).

V. (*a*) Persian :

Akhlaq Mohsini by Mullah Husain Kashifi.

Pand Nama by Fariuddin Attar.

Jamiul Qawaid.

(*b*) **Tamil:**

Tamizar Veeram by R. P. Sethu Pillai.

(*c*) **Malayalam :**

Shahjahan by R. C. Sarma. (Published V. Sundara Ayyar & Sons, Trichur.)

Kattupookal by K. Vasudevan Moosad, Chembukkavu, Trichur.

VI. History of Urdu Literature:

1. Mukhtasar-Tarikh-i-Adabi Urdu by Izah Hussain.
2. Tarikh-i-Adabi Urdu by Askari. (Translation of Saksina).

Final.

1959, 1960, 1961 & 1962.

Prose:

1. Sab Ras by Moulana Wajhi.
2. Bagh wa Bahar by Mir Amman.
3. Ifadat Mahdi.
4. Dunya ki Kahani by Prof. Mujib (Jamia Publication).
5. Kaifiya by Kaifi Dattatarya.
6. Hamari Shairi by Masud Hasan Rizwi.

Poetry

1. Qutb Mushtari by Moulana Wajhi.
2. Diwan-e Anwal Mir Taqi Mir.
3. Qasa'id Zou.
4. Bal-e Jibril.
5. Rubaiyat-e Amjad, Part II.
6. Hamari Shairi by Masud Hasan Rizwi.

History of Language and Literature:

1. Tarikh-i-Adabiyyat-i-Urdu.
2. Mauj-i-Kauthar.

Tarikh-e Islam:

1. Tarikh-e Islam (Urdu versian of a short History of Saracens by Amir Ali).

2. Tarikh-al Ummat by Aslam, Jairaipuri (First five parts).

Special author :

Sarshar.

(a) Persian:

1. Gulistan-e Sadi—Dibacha and First four Chapters.

2. Diwan-e Hafiz—Radif-e Alif only.

3. Jamiul Qawaid.

b) Tamil:

Seethakkathi Vallal by Dr. Nainar.

(c) Malayalam:

Nurjahan by K. M. Panikker.

Valluvakamamaran by C. Kunhirama Menon (Published by P. K. Bros., Kozhikode.)

AFZAL-UL-ATIBBA

Preliminary.

1959, 1960, 1961 & 1962.

I. Kulliyat:

1. Kulliyat-e Qanun-e Shaikh.

2. Risala-e Nabz Abdul Latif Falsafi.

3. Kitab-al-akhlat.

II. Tashrih:

1. Tashrih-e Kabir.

2. Mabadi-al-Tashrih Wal-Fizalogiya Wal-al-Hygiene

III. Manafi:

1. Mabadi-al-Tasjrih Wal-Fizalogiya.
2. Makhzan-e Hikmat.

IV. Ilm al-Adviya:

1. Kulliyat-al-adviya, 3 Volumes.
2. Umdat al Mutabbibin Fi Fann-al-Saidalah.
3. Kitab-al-Adviya.
4. Asbag al Kimya by Abdui Kahman or Saidar Khan.

V. Tibb-e Qanuni wa Ilb-al-Sumum:

1. Tibb-e Qanuni by Hakim Fazlur Rahman Khan.
2. Makhzan-e Hikmat.

VI. Hifz-e Sihat :

1. Qanun-e Shaik, Volume II.
2. Qawa'id-e Hifzal Sihat by Yuhanna Afandi.
3. Kifyat al-Awam fi Hifiz al-Sihat wa Tabdir al-Asqam.
4. Makhzan-e Hikmat.

For consultation:

1. Kamil-al-Sinaat.
2. Wajibat-al-Tibb.
3. Kulliyar-e Sadidi.
4. Nayyar-e A'zam.

Final.

1959, 1960, 1961 & 1962.

I. Mualajat:

1. Sharh al-Asbab wal Alamat.
2. Tarjama-e Kabir, First 4 Volumes.
3. Al-Inayat-bi al Tibb Fi al-Sihar wal-Maraz.

II. Ilm al-Amrad wal-Jarasim:

1. Kutab-al-Bathalogia.
2. Muquddima-e kitab-al-Jarahat, Part I.
3. Ilm-al-Amraz (Chashma-e Zindahi Publication, Lahore).

III. Ilm-al-Tashkhis:

1. Kitab al Meyinat wa Alamat al-Tashkhis.
2. Kamil-al-Tashkis by Dr. Mohamed Sadiq.

IV. Ilm al Jarahat:

1. Al-Ilaj-al-Jarrahi.
2. Kitab-al-Jarahat.
3. Al-Umda Fi al-Jarahat.

V. Ilm al-Qabila wa Amraz al-Niswan wal-Atfal:

1. Lamhat al-Saadat fi Fann al-wiladat by Dr. Easa Basha Hamid.
2. Ta'lim-al-Qabila.
3. Risala-Amraz-e Sibyan.
4. Talim-al-Qabila by Hakim Abdul Razzack.

VI. Tarik-e-Tibb:

1. Uyun al Anba Fi Tabqat al Atibba.
2. Al-Akhlat.
3. Al-Burhan.
4. Jarasim wa Tibb-e Qadim.
5. Jarasim wa Tabi'at.

For Consultation:

1. Al Khulasa-al-Tibbiya Fi al Amraz al-Batiniya.
2. Mualajat-e Qanun.
3. Tamaddun-e Arab.
4. Uloom-al-Arab by George Zaidan.

TABIB-I-KAMIL

Preliminary:

1959, 1960, 1961 & 1962

I. Kulliyat:

Mufarrihul Qulub (Farsi) or
Ifada-e Kabir Mujmal.

II. Tashrih:

Tashrih-e-Saghir, Parts I and II.

III. Manafi-al-A'za:

Manafi-al-A'za by Hakim Rizwan Ahmed.

or

Makhzan-e Hikmat by Dr. Ghulam Jilani.

or

Tashrih wa Af'al al-A'za by Dr. Gulam Jilani.

IV. Ilm al-Adviya:

1. Kulliyat-e Adviya.
2. Kutab-al-Adviya.
3. Ilm al-Saidalah, Volume II.
4. Delhi Ki Dawa Sazi.
5. Kitab-e Kimiya by Sardar Khan.
6. Asbaq al Kimiya by Khalilur Rahman.

VI Tibb-e Qanuni Ilm al-Sumum:

1. Tibb-e Qanuni.
2. Ilm al-Sumum.
3. Makhzan-e Hikmat.

VI. Hifz-e Sihat:

1. Makhzan-e Hikmat.
2. Qanun-e Shaik.

For Consultation:

1. Ifada-e Kabir Mufassal
2. Kulliyat-e Nafisi, Volume II
3. Makhazin al-Ta'lim.
4. Qarabadin-e Qadiri.

Final

1959, 1960, 1961 & 1962

I. Mualaiat:

1. Tarjuma-e Kabir, Volumes I, II and III
2. Hummayat Qanun.
3. Makhzan-e Hikmat.

II. Ilm al-Amraz wal-Jarasim:

1. Makhzan-e Hikmat.
2. Ilm al-Amra (Chashma-e Zindagi Publication, Lahore).

III. Ilm-al-Tashkhis:

1. Ilm-al-Tashkhis, Parts I and II
2. Risala-e Qarura Jadid

IV. Ilm-al-Jarahat:

1. Aaml-e Ihtiqan
2. Kitab-al-Jarahat.
3. Makhzan-e Hikmat.

V. Ilm-al-Qabila wa Amraz-al-Niswan wal-Aftal:

1. Fann al Wiladat
2. Ta'lim-al-Qabila
3. Tabib-e-atfal.

VI. Tarikh-e Tibb wa Tahqiq wa Tatbiq-e Masaail:

1. Al-Akhlat.
2. Burhan.

For Consultation:

1. Iksir-e Azam.
2. Al-Iksir.
3. Jarasim wa Tibb-e Qadim.
4. Jarasim wa Tabi'at.
5. Kamil-al-Tashkhis by Dr. Mohammad Sadiq.

MALPAN TITLE EXAMINATION, 1959.

Preliminary

1959

A. Prose:

Gospel of St. Luke (whole).

Poetry:

Breviary of the Syro-Malabar Church for Monday and Tuesday. (Psalms omitted), (St. Joseph's Press, Mannanam, Kerala State).

B. History of Syriac:

Literature by Dr. Wright (A & C. Blackie, London).

C. History of the Syrian Church in India.

1. St. Thomas the Apostle (Centenary Souvenir, Mar Louis Memorial Press, Ernakulam, Kerala State)

2. History of St. Thomas Christians, Volumes I and II by Fr. Bernard, T.O.C.D. (St. Joseph's Press, Mannanam)

Final

1959

A Prose:

1. Genesis (Old Testament)—whole.
2. Daniel, Chapters 1-7.
3. Isaiah, Chapters, 1-30.
4. Gospel of St. Mark (whole).
5. Acts of the Apostles, Chapters 1-11.
6. Life of St. Ephrem (St. Joseph's Press, Mannanam, Kerala State).
7. The Book of Treasures by Job of Edessa (Macmillan& Co., New York).

Poetry:

1. The Breviary of the Syro-Malabar Church for Thursdays, Friday and Saturday, Psalms being omitted (St. Joseph's Press, Mannanam, P.O., Kerala State).

2. Kthobo d' Keenotho (Mar Thoma Press, Old Seminary, Kottayam P.O., Kerala State).

3. Satan and Death, Kunosh Margonyotho Suryayotho, pages, 58-62 (St. Joseph's Press, Tiruvella, Kerala State).

4. The castle of Anazit, Kunosh Margonyotho Suryoyotho, pages 62-66 (St. Joseph's Press, Tiruvalla, Kerela State).

B. Grammar:

1. Syriac Grammar by Fr. Gabriel (St. Joseph's Press, Mannanam, Kerala State).

2. Compendious Syriac Grammar by Naldeke (William Norgate Ltd., 36, Great Russel Street, London).

C. History of Syriac Literature :

Dr. Wright, A. & C. Blackie, London.

D. History of the Syrian Church in India :

1. St. Thomas the Apostle (Centenary Souvenir) by Dr. P. J. Thomas. Dr. Placid, Dr. Ettumanookaren and Mr. K. E. Job (Mar Louise Memorial Press, Ernakulam, Kerala State).

2. The Two Apostles of India by A. C. Perumalil, S.J., Catholic Mission Press, Ranchi, Bihar).

3. History of the St. Thomas Christians, Volumes I and II by Fr. Barnard (St. Joseph's Press, Mannanam).

4 The Indian Church of St. Thomas by E. M. Philip, (C.M S. Press, Kottayam).

5. The Syrian Church of Malabar and its cultural contributions, by Dr. J. Placid and Sri K. E. Job (St. Joseph's Press, Mannanam, Kerala State).

6. Early History of Syria and Palastine by Dr. Lewis Boyles, Petton (John C. Nimmu, 14, King William Street, Strand, London).

MALPAN TITLE EXAMINATION—1960 & 1961

Preliminary

(*a*) Text-books:

Prose:

Gospel of St. Luke (whole).

Poetry:

1. Selections from Syriac poetry : Lessons 1-14. 500 line- (St. Joseph's Press, Mannanam).

2. The Homily of Mar Narsi on Joseph : 400 lines from Liber Superiorum, pp. 609—628, edited by P. Bedjan, 1901 (Paris De Sevres, 95).

(*b*) History of Syriac Literature : By Dr. Wright (A. & C. Blackie, London).

(c) History of the Syrian Church in India :—

1. The St. Thomas Christians, by Fr. Bernard, Vols. I & II (St. Joseph's Press, Mannanam).

2. The Syrian Church of Malabar and its cultural contributions by Dr. Placid and Mr. K E. Job (St. Joseph's Press, Mannanam.)

Final

1960 & 1961

(a) Text-Books :

Prose:

The same as for 1959 viz :

1. Genesis (Old Testament—whole.
2. Daniel, Chapters 1-7.
3. Isaiah, Chapters 1-30.
4. Gospel of St. Mark (whole).
5. Acts of the Apostles, Chapters 1-11.

6. Life of St. Ephrem (St. Joseph's Press, (Mannanam, Kerala State.)

7. The Book of Treasures by Job of Edessa (Macmillan & Co, New York).

Poetry :

1. The Homily I of Mar Narsi on Joseph, Son of Jacob: 750 lines from Liber Superiorum, pp. 521-558, edited by P. Bedjan, 1901 (Paris, De Sevres, 95).

2. Testament of St. Ephrem, lines 600, from Libber Superiorum, pp. 681-696, edited by P. Bedjan, 1901 (Paris, De Sevres, 95).

(b), (c) and (d) The same as for B A. Part II, viz.

(b) *Grammar :*

1. Syriac Grammar by F. Gabriel (St. Joseph's Press, Mannanam, Kerala State).

2. Compendious Syriac Grammar by Noldeke (William Norgate Limited, 36, Great Russel St., London).

(c) *History of Syriac Literature :*

Dr. Wright, A. & C. Blackie, London.

(d) *History of the Syrian Church in India* :

1. St. Thomas the Apostle (Centenary Souvenir) by Dr. P.J. Thomas, Dr. Placid, Dr. Ettumanookaran and Sri K. E. Job (Mar Louis Memorial Press, Ernakulam, Kerala State).

2. The Two Apostles of India by A. C. Perumalil (Catholic Mission Press, Ranchi, Bihar).

3. History of the St. Thomas Christians, Volumes I and II by Fr. Bernard (St. Joseph's Press, Mannanam).

4. The Indian Church of St. Thomas by E. M. Philip (C.M.S. Press, Kottayam).

5. The Syrian Church of Malabar and its cultural contributions by Dr. J. Placid and Sri K. E. Job (St. Joseph's Press, Mannanam, Kerala State).

6. Early History of Syria and Palestine by Lewis Boyles Betton (John C. Nimmu, 14, King William Street, Strand, London).

SOPPAR TITLE EXAMINATION

Preliminary:

1959, 1960, and 1961

I. Syriac Main:

1. The Epistle to the Hebrews.

2. The Breviary of the Syro-Malabar Church for Thursday (Psalms excepted), St. Joseph's Press, Mannanam, Kerala State).

B. History of Syriac Literature:

Dr. Wright, A. & C. Blackie, London.

II. Hebrew Subsidiary:

1. Book of Ruth.

2. Psalms 125-150 (St, Joseph's Press, Mannanam, Kerala State).

Final

1959, 1960 and 1961

I. Syriac Main—Text-Books :

A. Prose:

1. The Book of Isaiah, Chapters 1-30.

2. Gospel of St. Mark.

3. Acts of the Apostles, Chapters 1-11.

4. Life of St. Ephrem' (St. Joseph's Press, Mannanam, Kerala State).

5. The Book of Treasures by Job of Edessa (Macmillan & Co., New York).

Poetry:

1. Breviary of the Syro-Malabar Church for Thursday, Friday and Saturday, Psalms being omitted (St. Joseph's Press, Mannanam, Kerala State).

2. Satan and Death, Kunosh Margonyotho, Suryoyotho, pages 58-62 (St. Joseph's Press, Tiruvella, Kerala State).

3. The Castle of Anazit, Kunosh Margonyotho Suryoyotho, pages 62-66 (St. Joseph's Press, Tiruvella, Kerala State).

B. Grammar:

1. Syriac Grammar by Fr. Gabriel (St. Joseph's Press, Mannanam, Kerala State).

2. Compendious Syriac Grammar by Noldeke (William Norgate Ltd., 36, Great Russel Street, London).

C. History of Syriac Literature:

Dr. Wright, A. & C. Blackie, London.

D. History of the Syrian Church in India :

1. St Thomas the Apostle (Centenary Souvenir) by Dr. P. J. Thomas. Dr. Placid, Dr. Ettumanookaran and Sri K. E. Job. (Mar Louis Memorial Press, Ernakulam, Kerala State).

2. The Two Apostles of India by A. C. Perumalil (Catholic Mission Press, Ranchi, Bihar).

3. History of the St. Thomas Christians, Volumes I and II by Fr. Bernard (St Joseph's Press, Mannanam).

4. The Indian Church of St. Thomas by E.M. Philip (C.M S Press, Kottayam)

5. The Syrian Church of Malabar and its cultural contributions by Dr. J. Placid and Sri K. E. Job (St. Joseph's Press Mannanam, Kerala State).

6. Early History of Syria and Palestine by Lewis Boyles Petton (John C. Nimmu, 14, King Willaim Street, Strand, ondon).

Hebrew Subsidiary:

1. *Isaiah*—Chapters 1-15 (both included).

2. Deutoronomy—Chapters 1-12.

CHAPTER LIV.

Titles in Music in the Faculty of Fine Arts.

(*Sangita Siromani Title*).

1. There shall be examinations in Indian Music qualifying for Titles and Degrees in the Faculty of Fine Arts as in Regulations *infra*.

2. The Title awarded shall be called Sangita Siromani.

SANGITA SIROMANI.

Duration of the course.

3. The course of studies for this examinations shall extend over a period of four academic years and shall be pursued in a Constituent or an Affiliated College or an Institution approved by the Syndicate.

Examinations.

4. The examination for the Title shall consist of two parts: the Preliminary and the Final—the Preliminary Examination at the end of the second academic year and the Final Examination at the end of the fourth academic year:

Provided, however, that no candidate shall be admitted to the Final Examination unless he has passed the Preliminary Examination, and a period of one academic year has elapsed thereafter.

5. The course of study shall be as follows:—

Preliminary.

Course of Study.

Part I—Theory of Indian Music and History of Indian Music (Modern Period) including prescribed classical works relating to the Music of the Modern Period.

Part II—A Selected Language (Sanskrit, Tamil Telugu, Kannada, Malayalam or Hindi).

The syllabuses, text-books and the examination shall be the same as those for Part II of the Intermediate Examination in the language concerned.

Part III—*Practical*—Vocal, Veena, Violin, Gotuvadyam, Flute, Nagaswaram. Any *two* of the above, one of which shall be of the main standard and the other of the subsidiary standard, provided vocal shall be one of the subjects chosen.

Final.

Part I—Theory of Indian Music including the prescribed classical works in Indian Music.

History of Indian Music—Ancient and Mediaeval Periods.

Part II—(i) Practical (Main) and (ii) Practical (Subsidiary) *or* Musicology, according to a prescribed syllabus.

The instrument offered for the Final Examination shall be the same as for the Preliminary Examination:

Provided, however, a candidate may have the option in the Final Examination of interchanging the main and subsidiary subjects offered by him for the Preliminary Examination.

Scheme of Examination.

6. The Scheme of Examination shall be as follows:—

Preliminary.

	Subjects	*Hours*	*Marks*
Part I—			
	Theory of Indian Music I (including the prescribed classical works) ...	3	100

Subjects		Hours	Marks
Theory of Indian Music II (including the History of Indian Music)	..	3	100
Part II—			
Selected Language, Paper I	..	3	100
Selected Language, Paper II	..	3	100
Paper III—			
Practical (Main)	..	..	125
Practical (Subsidiary)	..	..	175
Total	....		600

Final

		Hours	Marks
Part I—			
Theory of Indian Music I	..	3	100
Theory of Indian Music II (including prescribed classical works)	..	3	100
History of Indian Music	..	3	100
Part II—			
Practical (Main) I	..	..	150
Practical (Main) II	..	..	150
Practical (Subsidiary) *or* Musicology	..	..	150
Total	..	..	750

Eligibility for admission to the course.

7. No person shall be permitted to enter upon the course of study for the Title unless he has satisfied the conditions laid down in Law 4 of Chapter XXXV of the Laws of the University.

Marks Qualifying for a pass.

8. A candidate shall be declared to have passed the Preliminary Examination if he obtains not less than 35 per cent of the marks in each of Parts I and II, 40 per cent in Part III and not less that 40 per cent of the total marks.

Provided, however, that a candidate who secures pass marks in one of the two parts Music or Language but fails in the examination shall not be required to appear again for the part in which he has secured a pass.

A candidate shall be declared to have passed the Final Examination if he obtains not less than 35 per cent of the marks in Part I, 40 per cent in Part II and 40 per cent of the total marks.

Classification of successful candidates.

Successful candidates in the Final Examination shall be arranged in two classes— the First consisting of those who obtain not less than 60 per cent and the second consisting of the rest.

Exemptions from course and examination in Part II —Preliminary.

9. Candidates who have passed in Part II of the Intermediate or B.A. Degree Examination of this University with Sanskrit, Tamil, Telugu, Kannada or Malayalam shall be exempted from being examined in Part II of the Preliminary Examination.

Other exemptions.

10. Candidates who have passed the Intermediate Examination in Arts and Science of this University with Indian Music as one of the subjects under Part III, may be permitted to sit for the Preliminary Examination for the Title without being

required to produce the necessary certificate of attendance.

Candidates who have passed the B.A. Degree Examination of this University with Indian Music under Part III shall be exempted from the Preliminary Examination and shall be permitted to appear for the Final Examination after undergoing the course for one academic year.

Holders of the Diploma in Indian Music of this University under the Regulations in force from 1937-38 shall be exempted from Parts I and III of the Preliminary Examination and shall be allowed to appear for the Final Examination after a course of two academic years provided they have passed in Part II of the Preliminary Examination before taking the Final Examination.

Candidates under the above Regulation who have not offered for the Intermediate or B.A. Degree Examination of this University one of the languages prescribed under Part II of the Preliminary Examination shall be required to undergo the course for one academic year and pass the examination in one of those languages not less than one academic year before appearing for the Final Examination, provided that the above course may be taken concurrently with the Sangita Siromani Course.

Syllabuses for Sangita Siromani Title
Sangita Siromani

Preliminary.

THEORY

Indian Music and its place amongst the musical systems of the world. The characteristic features of Indian Music.

Fundamental Technical Terms and their meaning. Detailed nowledge of the notation useed in South Indian Music.

The Tala system: Shadhangas; the scheme of the 35 talas; Desadi and Madhyadi talas; Chapu tala and its varieties.

The Scheme of the 72 Melakartas. Katapayadi formula and its application.

Raga lakshana in general; the *trayodasa* lakashanas mentioned for ragas in the Sanskrit works on music.

Raga Classification.

Lakshana of the following 36 Ragas:—

Todi	Kambhoji
Dhanyasi	Yadukulakambhoji
Mayamalavagaula	Kedaragaula
Saveri	Sahana
Bauli	Mohana
Nadanamakriya	Sama
Chakravaka	Khamas
Malayamaruta	Sankarabharana
Bhairavi	Bilahari
Ananadabhairavi	Kedara
Ritigaula	Begada
Kharaharapriya	Hamsadhvani
Mukhari	Arabhi
Abhogi	Pantuvarali
Sriraga	Purvakalyani
Madhyamavati	Simhendramadhyama
Gaurimanohari	Kalyani
Harikambhoji	Saranga

Art Music and Folk Masic.

Musical forms and their classification.

Lakshana of the following types of Compositions:—

Gita, Svarajati, Jatisvara, Tana Varna, Pada Varna, Kriti, Kirtana, Ragamalika, Pada, Javali and Tillana.

Musical instruments and their classification. Knowledge of the construction of the more important instruments like the Vina, Violin, Flute, Gotuvadya, Nagasvara and Mridanga.

HISTORY

History and development of South Indian Music during the Modern Period with special reference to the contributions of the following composers, along with short biographies of them:—

Purandara Das	Gopalakrishna Bharati
Tallapakam Chinnayya	Kavi Kunjara Bharati
Narayana Tirtha	Anayya
Bhadrachala Ramadas	Ramaswamy Sivan
Kshetrajna	Veena Kuppayyar
Paidala Gurumurti Sastri	Karur Dakshinamurti Sastri
Tyagaraja	Patnam Subramanya Ayyar.
Muthuswami Dikshitar	Mysore Sadasiva Rao
Syama Sastri	Tiruvottiyur Tyagayyar.
Subbaraya Sastri	Singaracharlu
Svati Tirunal	Dharmapuri Subbarayar
Muvvalur Sabhapati Ayyar	Pattabhi Ramayya
Arunachala Kavirayar	

Presribed Books.—

Ramamatya's *Svaramela Kalanidhi.*

Raghunatha's *Sangita Sudha.*

Venkatamakhi's *Chaturdandi Prakasika.*

Sangraha Chudamani.

Books for reference:—

Sangita Marthanda.

The Kritis of Syama Sastri and others, 3 vols. by Vidva-Kritimanimalai, 4 vols. by R. Ramanujam.

Tyagaraja Kirtanalu with Commentary by Veerabhadra Sastri.

The Teaching of Music by P. Sambamurti.

South Indian Music, Book V by P. Sambamurti.

Great Composers, Book I by P. Sambamurti.

Dictionary of South Indian Music and Musicians by P. Sambamurti.

Musical Compositions of Chengalvaraya Sastry by P. Sambamurti.

North Indian Music by Alain Danielou.

PRACTICAL—MAIN

For reference:—

Flute by P. Sambamurti (Second Edition).

35 Alankaras, 12 Sanchari Gitas, 2 Svarajatis, 2 Jatisvaras, 6 Adi Tala Varnas, 4 Ata Tala Varnas and 2 Jhampa Tala Varnas; 36 Kirtanas in the prescribed Ragas (*see* under Theory), 2 Padas, 2 Javalis and 2 Ragamalikas.

Tuning of the Tambura and the Vina. Alapana of the prescribed Ragas. Sight singing and aural training.

Rendering of Kalpanasvaras in the compositions in the following 16 Ragas:—

Todi, Dhanyasi, Mayamalavagaula, Saveri, Bhairavi, Anandabhairavi, Mukhari, Madhyamavati, Kambhoji, Mohana, Kedaragaula Sankarabharana, Bilahari, Purvakalyani and Kalyani.

PRACTICAL—SUBSIDIARY

Number of Compositions as specified in paragraph 1 of the Main Syllabus (Practical); all the Composition prescribed for the Main Examination ; and the Alapana of the following ragas—Todi, Mayamalavagaula, Saveri, Bhairavi, Anandhabhairavi, Madhyamavati, Kambhoji, Mohana, Sankarabharana, Bilahari, Purvakalyani and Kalyani,

Final

THEORY.

Manodharma Sangita and its forms. Raga Alapana Paddhati. Pallavi singing and the Paddhati underlying it.

Raga classification in ancient music. The Grama—Murchana-Jati system and the Suddha—Chayalaga—Sankirna system.

The theory of 22 srutis and the discussions relating thereto. Gamakas and their varieties.

Tala dasa pranas. Marga talas and Desi talas.

Musical forms figuring in sacred music, opera and dance music.

Musical Prosody.

Lakshana of the following 36 Ragas:—

Asaveri	Darbar	Athana
Punnagavarali	Nayaki	Navaroj
Ahiri	Sriranjani	Kuranji
Gaula	Huseni	Suddha Saveri
Bhupala	Kanada	Kannada
Gaulipantu	Devamanohari	Nata
Saurashtra	Surati	Varali
Vasanta	Natakuranji	Ramapriya
Revagupti	Balahamsa	Shanmukhapriya
Hindola	Nilambari	Latangi
Kiravani	Devagandhari	Vachaspati
Manirangu	Purnachandrika	Hamirkalyani

Musical appreciation; styles of the great masters. Outli comparative music. Development in contemporary music.

Acoustics.—

Musical sounds and their characteristics ; Pitch , Intensity. Timbre; Harmonics, Beats, Interval, Sympathetic vibration.

The production and transmission of sound. Reflection of Sounds; Echoes, Resonance. The laws of transverse vibration of strings and air-columns.

Harmony and Melody. Absolute pitch and Relative pitch. Modal shift of tonic. Scales of Just Intonation and Equal Temperament.

The structure of the larynx and ear.

Acoustics of music halls. Gramophone and the Radio.

HISTORY

History of Indian Music from ancient times with special reference to the works of the following:—

Bharata, Dattila, Matanga, Parsvadeva, Narada, Sarangadeva, Ahobala, Somanatha, Ramamatya, Raghunatha, Venkatamakhi, Tulajaji.

The origin and development of the Indian musical scale.

Evolution of musical forms. Sacred music in Sanskrit and Indian Languages and its growth. The origin and evolution of operas.

The influence of exotic music on the development of South Indian Music.

Study of the lives and the contribution of the following composers:—

Jayadeva	Ponniah
Sarangapani	Pallavi Duraisami Ayyar.
Ghanam Sinayya	Pallavi Seshayyar.
Sadasiva Brahmendra	Maha Vaidyanatha Ayyar
Ramaswamy Dikshitar	Subbarama Ayyar
Virabhadrayya	Ramnad Srinivasa Ayyangar
Matrubhutayya	Muthu Thandavar
Ghanam Krishnayyar	Arunagirinathar
Adiyyappaiah	Papavinasa Mudaliar
Pallavi Gopalayyar	Marimuthu Pillai
Margadarsi Seshayyangar	Vedanayakam Pillai

Books Prescribed:—

1. Music Chapters of Bharata's *Natya Sastra.*
2. Matanga's *Brhaddesi.*
3. The svara and raga Chapters of *Sangita Ratnakara.*
4. Ahobala's *Sangita Parjiata.*
5. Tulajaji's *Sangita Saramrita.*

For Reference:—

"Flute" by P. Sambamurti (Second Edition).

Introduction to the Study of Musical Scales by Alain Danielou.

Sangita Martanda.

The Kritis of Syama Sastri and others, 3 vols. by Vidya. Kriti-manimalai, 4 vols. by R. Ramanujam.

Tyagaraja Kirtanalu with Commentary by Veerabhadra Sastri.

The Teaching of Music by P. Sambamurti.

South Indian Music, Book V by P. Sambamurti.

Great Composers, Book I by P. Sambamurti.

Dictionary of South Indian Music and Musicians by P. Sambamurti.

Musical Compositions of Chengalvaraya Sastri by P. Sambamurti.

North Indian Music by Alain Danielou.

PRACTICAL—MAIN

4 Raganga raga lakshana gitas of Venkatamakhi; 4 Janya raga lakshana gitas of Gurumurti Sastri; 1 Suladi; 1 Prabandha and 1 Thaya; 2 Ata tala varnas; 2 Pada Varnas; 2 Ragamalikas; 2 Padas; 4 Ashtapadis of Jayadeva; 4 Tarangas of Narayana Tirtha; and 4 Padas of Purandaradas.

36 Kirtanas in the prescribed ragas (*see* under Theory).

Alapana of the prescribed ragas. Ability to render given pallavis in Adi, Rupaka, Triputa and Jhampa talas in the following ragas:—

Todi, Dhanyasi, Mayamalavagaula, Saveri, Bhairavi, Kambhoij Sankarabharana, Pantuvarali, Purvakalyani and Kalyani.

Ability to render Kalpana svaras to compositions in Adi, Rupaka, Triputa, Chapu and Jhampa talas.

PRACTICAL—SUBSIDIARY

Number of Compositions as specified in paragraph 1 of the Main Syllabus (Practical); all the Compositions prescribed for the Main Examination; and the alapana of the following ragas:—Saurashtra,

Darbar, Kanada, Sahana, Athana, Shanmukhapriya, Pantuvarali, Ritigaula, Mukhari, Khamas, Begada and Surati. Rendering of Kalpana svaras to compositions in Adi, Rupaka and Triputa Talas.

MUSICOLOGY.

There shall be a theory paper of three hours' duration carrying 150 marks.

Syllabus.

Music and Mathematics: Cycles of Fifths and Fourths.

Significance of the Dhruva Vina and Chala Vina Experiment of Bharata.

Vikrta Panchama Melas and other systems of Melas propounded by Lakshanakaras; Murchanakaraka Melas.

108 Talas.

Mudras in Compositions.

Gayaka Gunas and Gayaka doshas.

Geyanatakas (operas), Nrityanatakas (dance dramas); Bhagavata mela natakas; Kuravanji nataka.

Psychology of Music.

Instrumentation: Structure and function of Resonators in musical instruments, Instruments used in temple rituals, Musical stone pillars, their structure and purpose. Panchamukkavadyam

Sarva Vadyam. Ritualistic Music of South Indian Temples.

Geographical factors and their influence on the growth and character of a country's music.

An outline knowledge of staff notation. Melody, Polyphony and Harmony.

Fourpart Harmony. Principles underlying the progressions of parts.

Sources which provide material for History of Indian Music.

History and Evolution of the following: Musicography.

Nomenclatures in Music; Systems of Raga classification; Mela Paddhati; Mnemonics in Music; Tala system, Gamakas.

Career in Music in Ancient, Mediaeval and Modern times.

Principal seats of Music and their contribution towards the growth of Indian Music. The Musicians, composers and Lakshanakaras who flourished in those seats.

Evolution of the Vina.

Study of an opera o f Tyagaraja.

Lakshana of the following 14 ragas and knowledge of at least one composition in each raga: Jaganmohini, Pharaz, Manji, Abheri, Suddhabangala, Navarasakannada, Kuntalavarali, Kokiladhvani, Narayanagoula, Janaranjani, Nagasvaravali, Bangala, Garudadh-vani and Sarsvati.

COMPOSITIONS PRESCRIBED

Preliminary.

1959 and 1960.

	Raga.		*Composition.*
1.	Todi	...	Amba nadu.
2.	Dhanyasi	...	Dhyaname varamaina
3.	Mayamalavagaula	...	Merusamana.
4.	Nadanamakriya	...	Sivaloka nadanai
5.	Bauli	...	Parvati nayaka.
6.	Saveri	...	Durusuga kripa.
7.	Chakravakam	...	Sugunamule.
8.	Malayamarutam	...	Janmamenduku.
9.	Bhairavi	...	Rakshabettere.
10.	Anandabhairavi	...	Manasaguruguha.
11.	Kharaharapriya	...	Ramani Samana.
12.	Ritigaula	...	Raga ratnamalikache.
13.	Sriraga	...	Endaromahanubhavu.
14.	Madhyanavati	...	Dharmasamvardhani.
15.	Abhogi	...	Sabhapatikku.
16.	Mukhari	...	Pahimam Ratnachala.
17.	Gaurimanohari	...	Brovasamayamide.
18.	Harikambhoji	...	Saketanagara.

Raga.		*Composition.*
19. Kedaragaula	...	Natanam Seyyum.
20. Mohana	...	Jagadisvari.
21. Sama	...	Santamuleka.
22. Sahana	...	Ivasudha nivanti.
23. Kambhoji	...	Nadamadi tirinda.
24. Yadukulakambhoji	...	Lalite mam pahi daya.
25. Khamas	...	Marulukonnadira (Javali).
26. Sankarabharana	...	Nagalingam bhajeham.
27. Kedaram	...	Bhajana sayave.
28. Hamsadhvani	...	Sri Raghukula.
29. Arabhi	...	Sadhinchene.
30. Begada	...	Innumparamugameno.
31. Bilahari	...	Sri Balasubrahmanya.
32. Pantuvarali	...	Raghuvara nannu.
33. Purvakalyani	...	Satre vilagi irum.
34. Simhendramadhyama	...	Natajana pari.
35. Kalyani	...	Amma ravamma.
36. Saranga	...	Emidova.

Final.

1959 and 1960.

Raga.		*Composition.*
1. Asaveri	...	Chandram bhaje
2. Punnagavarali	...	Kanaka saila.
3. Ahiri	...	Viksheham kada.
4. Bhupala	...	Mamiyamchali (Ashtapadi)
5. Revagupti	...	Grahabalamemi.
6. Gaula	...	Dudukugala.
7. Gaulipantu	...	Teratiyyagarada.
8. Vasantha	...	Natanam adinar.
9. Saurashtra	...	Varalakshmim.
10. Hindolam	...	Nirajakshi.

Raga.		Composition
11. Kiravani	...	Kaligiyunte.
12. Sriranjani	...	Sogasuga mridanga.
13. Manirangu	...	Ranidi radu.
14. Devamanohari	...	Arukkuttan teriyum.
15. Darbar	...	Enta vedina gani.
16. Nayaki	...	Ranganayakam.
17. Kanada	...	Sukhi evvaro.
18. Huseni	...	Rama ninne.
19. Natakuranji	...	Budhamasrayami.
20. Surati	...	Balasubrahmanyam.
21. Balahamsa	...	Ninnubasi.
22. Suddha saveri	...	Ennattukkudavi.
23. Purnachandrika	...	Palukavemi.
24. Kuranji	...	Srivenugopala.
25. Navaroj	...	Elavachchitivo (Padam).
26. Kanada	...	Bhajare bhajamanasa.
27. Devagandhari	...	Kshirasagara.
28. Nilambari	...	Kanakannayiram.
29. Athana	...	Brihaspate.
30. Nata	...	Svaminatha.
31. Varali	...	Kanakana ruchira.
32. Ramapriya	...	Korinavara.
33. Shanmukhapriya	...	Vallinayakanive.
34. Latangi	...	Marivere.
35. Vachaspati	...	Kantajudumi.
36. Hamir Kalyani	...	Manamu leda.

Preliminary for 1961 and 1962.

Raga.		Composition.
1. Todi	...	Chesinadella.
2. Dhanyasi	...	Nichittamu.
3. Mayamalavagaula	...	Srinathadi.

Raga.		*Composition.*
4. Nadanamakriya	...	Inta paraka.
5. Bauli	...	Melukovayya.
6. Saveri	...	Varmama en midil.
7. Chakravakam	...	Etulabrotuvo.
8. Malayamarutam	...	Manasa etu.
9. Bhairavi	...	Chintaya ma.
10. Anandabhairavi	...	Ni madi challaga.
11. Kharaharapriya	...	Pakkala nilabadi.
12. Ritigaula	...	Sri Nilotpala.
13. Sriraga	...	Karunjudu.
14. Madhyamavati	...	Ramakatha.
15. Abhogi	...	Manasu nilpa.
16. Mukhari	...	Emani ne.
17. Gaurimanohari	...	Guruleka.
18. Harikambhoji	...	Undedi.
19. Kedaragaula	...	Venuganaloluni.
20. Mohana	...	Bhavanuta.
21. Sama	...	Maravakave O manasa.
22. Sahana	...	Emanatichchevo.
23. Kambhoji	...	Ma Janaki.
24. Yadukulakambhoji	...	Divakaratanujam.
25. Khamas	...	Brochevarevarura.
26. Sankarabharana	...	Akshaya linga.
27. Kedaram	...	Samayamide.
28. Hamsadhvani	...	Vatapiganapatim.
29. Arabhi	...	Chutamu.
30. Begada	...	Abhimanamenndu.
31. Bilahari	...	Kamakshi varalakshmi.
32. Pantuverali	...	Ennaganu Rama Bhajana.
33. Purvakalyani	...	Paramapavana.

Raga.		*Composition.*
34. Simhendramadhyama	...	Niducharana.
35. Kalyani	...	Ninnu vina gati gana.
36. Saranga	...	Enta bhagyamo.

Final for 1961 and 1962.

Raga.		*Composition.*
1. Asaveri	...	Lekana ninnu.
2. Punnagavarali	...	Ninnu juda (Padam).
3. Ahiri	...	Mayamma.
4. Bhupala	...	Dinajanavana.
5. Revagupti	...	Graha bala.
6. Gaula	...	Sri Maha Ganapati.
7. Gaulipantu	...	Krishnananda.
8. Vasanta	...	Etla dorikitivo.
9. Saurashtra	...	Suryamurte.
10. Hindolam	...	Samajavara gamana.
11. Kiravani	...	Kaligiyunte.
12. Sriranjani	...	Bhuvini dasudane.
13. Manirangu	...	Mamava Pattabhirama.
14. Devamanohari	...	Evarikai.
15. Darbar	...	Munduvenaka.
16. Nayaki	...	Ni Bhajana gana.
17. Kanada	...	Sri Narada.
18. Huseni	...	Aligite (Padam).
19. Natakuranji	...	Dasarathim.
20. Surati	...	Ambara chidambara.
21. Balahamsa	...	Ninu vinagati nakevarura.
22. Suddha saveri	...	Darini telusu.
23. Purnachandrika	...	Telisi Rama.
24. Kuranji	...	Siva Dikshaparu.

Raga.	Composition.
25. Navaroji	... Hastivadanaya.
26. Kannada	... Bhajare bhaja.
27. Devagandhari	... Svamiki sari.
28. Nilambari	... Amba nilambari
29. Athana	... Ilalo Pranatarti
30. Nata	... Sarasiruha sana.
31. Varali	... Kanakana ruchira.
32. Ramapriya	... Sandehamunu.
33. Shanmukhapriya	... Marivere dikkevarayya.
34. Latangi	... Aparadhamulanniyu.
35. Vachaspati	... Kantajudumi.
36. Hamirkalyani	... Venkata saila.

The Royal Printing Works, Madras-2.

ADDENDA

CHAPTER XXXVIII

The following be inserted in the appropriate places :

Examination.		Last date for receipt of applications together with the receipt of payment of fees in the Registrar's office.	Last date for submitting certificates.	Date of commencement of Examinations.	Last date of publication of results.
(1)		(2)	(3)	(4)	(5)
B,E. (New Regulations) :—					
First B.E.	...	December 20 or July 15.	March 9 or August 31.	March 20 or September 25.	1st Monday in May or 2nd Monday in November.
Second B.E.	...	do.	do.	Immediately after 1st B.E. Examination.	do.
Third B.E.	...	do.	do.	March 20 or September 25.	do.
Fourth B.E.	...	do.	do.	Immediately after 3rd B.E. Examination.	do.
Final B.E.	...	do.	do.	March 20 or September 25.	do.

Examination.	Last date for receipt of applications together with the receipt of payment of fees in the Registrar's office	Last date for submitting certificates.	Date of commencement of Examinations.	Last date of publication of results.
(1)	(2)	(3)	(4)	(5)
B.V.Sc. (New Regulations) :—				
First B.V.Sc. ...	January 20 or July 15.	March 15 or September 15.	April 1 or October 1	2nd Monday in May or 1st Monday in November.
Second B.V.Sc. ...	do.	do.	do.	do.
Third B.V.Sc. ...	do.	do.	do.	do.
Final B.V.Sc. Part I ...	do.	do.	do.	do.
Part II ...	April 15 or	June 1 or	June 15 or	4th Monday in July or
	October 15.	December 1.	December 15	4th Monday in January
M.Sc. (in the Faculty of Medicine).	January 20	April 1	April 15	2nd Monday in June.
M.Sc. in Engineering ...	do.	April 20	May 1	do.

B.Sc. (Tech.) (New Regulations) :—				
First year ...	January 20	March 19	April 1	3rd Monday in May
Second year ...	do.	do.	Immediately after 1st Examination.	do.
Third year ...	do.	do.	April 1	do.
Final Year ...	do.	do.	Immediately after 3rd Examination.	do.
B.S.Sc. Part I (of April).	February 15	April 5	April 15	May 1
Certificate Course in the Sciences and Humanities for teachers of High Schools.	December 15	March 9	March 20	3rd Mon.'ay in May

Pre-University Examination, 1960

PART III—THIRD LANGUAGE—TAMIL—1960

Poetry:

1. Panchali Sabadham —Sabadhaccarukkam: 60 to 104.
2. Manonmaniyam—Sivakami Sarithai: 140 lines.

Prose:

Prathapa Mudaliar Charithiram (Abridged edition), South Indian Book Trust.

PART III—THIRD LANGUAGE—TELUGU—1960.

1. Chitraratnakaram by G. Sriramamurty.
2. Paschallpamu by Dr. N. Venkata Ramanayya.

PART III—THIRD LANGUAGE—HINDI—1960.

(i) Hindi Padyavali by A. Chandrahasan, M.A. (The Bharat Stores, Broadway, Ernakulam.
—Excluding lessons 1, 2, 3, 4, 13 and 14.

(ii) Hindi Gadya Ratna by P. R. S. Shastri (Hindi Sahitya Seva Mandir, Chickamavalli, Bangalore.
Lessons 1 to 8 only to be studied.

B.A. and B.Sc. Degree Examination

(New Regulations)

PART II (*a*)—URDU—1959

Page 486—

Prose:

Substitute for "Zikr-o-Fiker, Vol. II" the following :—

1. Classic: Adab by Khauja Ahmad Farooqui—Published by Kitab Ghar, Delhi.
2. Adab-i Our Qawmi Tazkira Part II by Pandit Kishan Prashad Kole—Published by Anjuman-e-Tarqqi-i Urdu, Aligarh.

Poetry:

Substitute for "Rang-o-Ahang" the following:
Bange—Dira Hissani Swwvam.

B.A. Degree Examination

(New Regulations)

PART III

Branch II—Politics:

Page 262 of the Calendar—

The details for the three authors for B.A. Branch II—Group A:

5. Aquinas: Text as in Blackwell's Political Texts—Aquinas.
6. Arthasastra: Books I, VI, VII, VIII and XII (Shyama Sastry).
7. Tirukkural: Porutpal.

Branch II—Politics

Prescribed Text-Book under Political Theory for 1960 examination.

Burke: Reflections on the French Revolution.

B.A. Degree Examination

(New Regulations)

PART III—BRANCH III—SOCIAL SCIENCES

1. In Regulation 3 (a)—Course of study—of the three-year B.A. degree course—Branch III—Social Sciences be modified to read as follows:

'Branch III—Social Sciences.'

The candidates opting for this Branch shall take Sociology (Paper I and Paper II) as a Compulsory subject and two other subjects from out of the following three Sections only one subject being chosen from any Section.

Section I.

(i) History—

(a) History of India—Paper II. (2)

(b) History of Greece and Rome upto 395 A.D. (3)

(ii) Philosophy—

(a) Ethics (33)

(b) Philosophy of Religion (19)

Section II.

(i) Politics—

(a) Political Theory including a text (12)

(b) Modern Governments (14)

(ii) Psychology—

(a) General Psychology (41)

(b) Social Psychology (20)

Section III.

(i) Economics—

(a) General Economics. (23)

(b) Indian Economic Problems. (29)

(ii) Geography—

(a) Principles of Human Geography (31)

(b) Social Geography of India (24)

(ii) Anthropology—

(a) Social Anthropology (21)

(b) Cultural Anthropology (22)

There shall be two papers in each of the subjects. (The subjects will cover both Main and Ancillary).

2. That Regulation 4 (c)—Branch III—Social Sciences—be modified to read as follows:

		Hours.	*Marks.*
Sociology—			
Paper I	...	3	100
Paper II	...	3	100
Optional subject I—			
Paper I	..	3	100
Paper II	..	3	100
Optional subject II—			
Paper I	..	3	100
Paper II	..	3	100
			600

B. A. Degree Examination

(New Regulations)

Part III—Branch XI—History of Fine Arts

Group B—Ancillary—Drawing & Painting

In the Regulations for three-year B.A. Degree, under Regulation 3 (a) Course of Study, Branch XI—History of Fine Arts, the following be inserted under "Group B":—

" (vi) Drawing and Painting."

Syllabus for the Ancillary Subject (vi) Drawing and Painting.

1. *Nature Drawing*:

Plants: Leaves, flowers, fruits, branches, single tree, group of trees, from nature.

Medium: Pencil and Water colour.

Still life: Fruits, flowers.

Medium: Pencil and water colour.

2. *Perspective and Object Drawing*:

Laws of perspective by observation of straight line object.

Laws of perspective by observation of curved line object.

Space perspective by observation in out-door sketches.

Law of perspective of oblique lines in

(*a*) Object Drawing.

(*b*) Space perspective.

Practical application of perspective in

(1) Object Drawing: Single Objects, group of objects, in straight line, curved line and oblique line.

(2) Landscape:

(*a*) Illustration by clear diagrams of out-door space perspective.

(*b*) Free-hand drawing of landscape from nature.

Medim: Pencil and water colour.

Examination Scheme: One paper, Time 3 hours, Marks 100.
Practical application of perspective in:

Object Drawing: (e.g. a group of 2 or 3 objects (Straight line and curved line objects).

Medium: Pencil shaded or water colour

or

Landscape (Space perspective) e.g. an out-door sketch in the compound or a building or a part of building with surroundings.

Medium: Pencil or water colour.

or

Nature Drawing Still life: (e.g. a still life of fruits or flowers
Medium: water colour.

B.Sc. Degree Examination

(New Regulations)

PART III—BRANCH III—PHYSICS

GROUP A

Addition to the list of Books for Study:

1. Practical Physics by M/s. A. G. Narasimhan, A. Ramamurti and Raman (B. G. Paul & Co., Madras).

2. Physics Series issued by the National Publishing Co., Madras.
   (*a*) Mechanics, Vols. I and II.
   (*b*) General Physics.
   (*c*) Light.
   (*d*) Heat.
   (*e*) Magnetism and Elec ricity.

Books for reference (addition):

Yarwood and Castles' Physical and Mathematical tables (Macmilla n & Co.)

B.Sc. Degree Examination

(New Regulations)

PART III

GROUP-B—PHYSICS

(Ancillary)

Addition to the list of Books recommended for reference:

1. Practical Physics for Ancillary students by A. G. Narasimhan, A. Ramamurti and Raman (B. G. Paul & Co.,) Madras.
2. Ancillary Physics issued by National Publishing Co., Madras.

B. Com. Degree Examination

(New Regulations)

(i) Page 640—

Group B be modified to read as follows:—

GROUP B

1. Banking Law and Practice.
2. Business Organisation and Secretarial Practice.
3. Mercantile Law.
4. Advanced Accountancy.
5. Auditing.
6. Statistical Methods.

(ii) Page 641—Part III—Groups B and C—Scheme of Examination be modified to read as follows:

PART III

		Hours	*Marks*
	GROUP A		
1.	General Economics ...	3	100
2.	Modern Economic Developments and Economic Problems of India ...	3	100
	GROUP B		
1.	Banking Law and Practice ...	3	100
2.	Business Organisation and Secretarial Practice ...	3	100
3.	Mercantile Law ...	3	100
4.	Advanced Accountancy ...	3	100
5.	Auditing ...	3	100
6.	Statistical Methods ...	3	100
	GROUP C		
1.	Paper I in the selected subject ...	3	100
2.	Paper II in the selected subject ...	3	100
	Total ...		1,000

M.A. Degree Examination

(New Regulations)

In Regulation 2 of the M.A. Degree Course, Proviso 2 be modified to read as follows:

"Provided that any graduate in Arts or Science shall be eligible to pursue a course of study for the Maste Degree in Branch I—History, Branch II—Politics and Public Administration and in Branch V—Philosophy."

M.A. Degree Examination

(New Regulations)

BRANCH II—POLITICS AND PUBLIC ADMINISTRATION

Page 724—Under 3. The Theory of the State (Prescribed Texts):

1. (*a*) Bentham: Theory of Legislation be *deleted* and substituted by Bentham: An introduction to the Principles of Morals and Legilsation.

   (*b*) Laski: Problem of Sovereignty be *deleted* and substituted by Bertrand Russel: Bower.

2. Excerpts for annotation be taken from the portions of prescribed texts indicated below:

   (*a*) Aristotle: Politics (Tr. by Barker), Books II and IV.

   (*b*) Rousseau: Social Contract (Tr. by Tozer), Book I, II and III.

   (*c*) Bentham: Fragment on Government, Chapters II and III.

   (*d*) Bentham: Principles of Morals and Legislation, Chapters I to VI and Chapter XI.

   (*e*) Russell: Bower, Chapters X to XVII.

   (*f*) Laski: The State in Theory and Practice, Chapter IV.

M.A. Degree Examination

Branch III—Economics

Books recommended for reference (Additions):

Under Indian Economic Problems:

1. Inflationary Price Trend in India since 1939 by Dr. Bright Singh.
2. Indian Economy, its nature and Problems by Alak Gosh.

Under Adavnced Economics:

Economi Analysis by Boulding.

M.A. Degree Examination

(New Regulations)

Branch VII—English

Page 872—

Add under "The Elizabethan Age", the following:

Drama:

For Detailed Study:

Marlowe's Dr. Faustus—Ben Jonson's Volpone.